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The Beattie-Smith Lectures.¹ (THE UNIVERSITY OF MELBOURNE.)

SOME ASPECTS OF CHILD DEVELOPMENT AND MENTAL HEALTH.

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LECTURE II.

So far I have discussed mental health in early childhood, particularly in relation to family life. This evening I shall refer to some other agencies that play a part in the child's development. Although most important, their influence must of necessity be somewhat less significant than that of the home. The reason for this is implied in the first lecture, and depends on the close and unique emotional bond between parent and child.

THE KINDERGARTEN.

When activity needs were described the difficulty was mentioned of making adequate provision in homes situated in crowded cities. Of recent years voluntary bodies have made notable efforts to bridge this gap, providing pre-school centres, kindergartens, supervised playgrounds and the like. Lack of funds prevents them from more than pointing the way. In Victoria more than five times the present facilities of this kind are required. Accurate knowledge collected over the past fifty years on how the child's needs can best be met is available to all who read; if this was used to the best advantage, the gain to personality development and social progress would be immense. Apart from developing bodily coordination, training the senses and intelligence in ways appropriate to children's capacity at different ages, stimulating art

appreciation, and providing outlets for imaginative play, the kindergarten supplies contact with other children. This has a twofold value. It begins at an early age the long and difficult process of adjusting personal wants and peculiarities to the requirements, conventions and culture of the group. It also removes the child for a few hours each day from the company of adults. Today, when small families are usual and living conditions often inadequate, the danger of "over-adulteration" is real. No matter how kind and good they are, the strain of competing with grown-ups and being judged by their standards is great. Sooner or later, unconsciously, the child must protest, perhaps aggressively (becoming "terribly defiant", as a harassed mother recently described to me her three-year-old daughter living in such an atmosphere), perhaps submissively, often crying and unhappy, timid and anxious, or by some behaviour difficulty, at times striking, often obscure, which if not cleared up may lead to a permanently warped personality. Other faults in upbringing can of course produce the same result—the misnamed "problem child" in fact. In passing, let me say that I dislike this title, because of its unfairness in implying something intrinsically wrong. When used in the hearing of the child, as it is sometimes by those who wish to air their psychological jargon or are just thoughtless, it is cruel. It is only too easy to add another nail to the coffin of inferiority. Better say a child with problems, problems he has often not caused himself and which usually arise in his home. I shall quote now from a letter received, as I was writing this paragraph, from the mother of the "terribly defiant" little girl I mentioned. What I had done, at their one visit, was to say that her daughter was a perfectly healthy, intelligent little girl and that her behaviour was natural in the circumstances (the circumstances were four adults and a six-months-old baby in four rooms, plus a father who used to believe in whippings), and later to arrange by a little wire-pulling for the child's admission to an already crowded nursery school. Four days after the first attendance the mother wrote:

C. started kindergarten on Monday. She is most enthusiastic about it and cannot get there quick enough

¹ Delivered at Melbourne on April 21 and 28, 1947.

each morning, and when I call for her does not want to come home. Miss —, the young lady in charge of the children, said C. was quite all right; I don't think she meant good, I could hardly imagine her being that amongst so many children. Also she said she was a "live wire". C. eats the lunch which is prepared for them there and has had her afternoon sleep on three occasions. On the other two afternoons that she hadn't her sleep she retired very early in the evening. Even though it is a little early perhaps to really tell the effect it will have [on C.], I have noticed that she is not nearly so miserable and restless. Another thing is that she does not suck her fingers; well hardly at all. I am very grateful for what you have managed to do for me. It has been a little difficult for me as I have had my mother very sick, and added to that the worry of seeing C. so very miserable, things were gradually getting beyond my definitely inadequate grasp.

Instances such as this, and many far more difficult of solution, occur by the thousand. How can they be prevented? First and foremost, by the provision of better home life. This means both the home itself and the parents and family in it. Whilst the need for suitable homes, with space and comfort for a family, is perhaps the most urgent social problem today, the crux of the situation is, and always will be, the parents themselves. I remember over twenty years ago, when I spent a year in Glasgow, that a nutritional survey was being made for the children's hospital there. Over and over it was apparent that even in the poorest homes these hardy people were bringing up families of fine children. The same occurs everywhere. Of course, with better amenities better results and fewer tragedies would follow. The point to stress is that it is not material goods that lead to greatness, but the character of the people. As far as parenthood is concerned, everything that makes for character means good parents. A few years ago I was associated with others in arranging a forum discussion on education for parenthood. We quite enjoyed the experience. Of the group, some were experts who were not parents, some were parents who were not experts, and one or two were a little of each. We had several preliminary discussions and after much argument came to the conclusion that there was really no such thing as special education for parenthood—that it was often worrying and confusing when attempted. It was thought that if education in the widest sense had developed a balanced personality and character, such persons would in due course become good parents. This does not mean that other facilities are not necessary; far from it. Things being as they are, difficulties will often arise. Indeed, it is probably an understatement to say that 10% of children—or, more correctly, their parents—need help to solve some behaviour difficulty or other. Moreover, certain educational procedures are beyond the capacity of most homes to provide. In these days a great many agencies exist to help children. The most striking feature in fact, as W. S. Craig⁽¹⁾ remarks in his recent book "Child and Adolescent Life in Health and Disease", is the "bewildering complexity" of their work. We have doctors (general and special), educationists of many kinds, nurses, social workers, institutions, reformatories, departments, clinics, dietitians, foster parents, home helps and philanthropic individuals, constructing, patching and repairing; and yet the goal of healthy childhood eludes us. Some would like to see these multifarious activities centralized and coordinated. I am not amongst them. More frequent voluntary consultations, yes. Attempted uniformity, no; particularly not uniformity under departmental control. What I have experienced inspires in me no enthusiasm for government management, by any political party. Of the various outside bodies seeking to aid the young child, the nursery school and kindergarten are the most important. Here modern ideas of education are seen at their best. Trained staff, suitable equipment, a programme based on natural interests and development, and the use of small groups of 15 to 20 so that every child gets enough individual attention, are notable features. All this costs money. Using some voluntary help, a kindergarten cannot be properly run today at much less than about £20 per head per year. In a special demonstration school, such as we see in the Lady Gowrie Child Centres⁽²⁾ in each capital city of Australia, the cost is over £30 per

head, and rising. It is being said—and very firmly said, too—by the custodians of the public purse (as they like to be called) that the country cannot afford education at this rate, even with the meagre facilities now available. I repeat, we need five times the present number of nursery schools and kindergartens in this State. Can the community—the public—afford not to pay for them? It is my belief that money spent and work done for the child are the most important national efforts that can be made, bar none.

PROFESSIONAL TRAINING.

I should like also to point out the need for sound training in the principles of child development for all professional workers in this field. In some respects this is already done, particularly with regard to the so-called physical side of health. More attention should be paid to child psychology, and to adult psychology, too, as both constantly interact. Of all the agencies handling children, none is in greater need of this wider knowledge than the medical profession. The doctor—especially the general practitioner and the paediatrician—by virtue of his experience and the traditions of his calling, is peculiarly well placed to help. In England and America this realization is beginning to be acted upon. Many of the leading medical schools have considerably increased their facilities for psychological study in the students' curriculum and are planning further extensions. In the University of Melbourne we are lagging. A tendency on the part of the medical faculty here is to look on such an increase as merely "another speciality", and to oppose it. If such were the case, opposition would be well founded. There is too much unnecessary detail in the medical course already. Properly introduced, psychology would not be another speciality, or an attempt to train all doctors in psychiatry, which is definitely a post-graduate study. Medicine is a four-footed animal and should stand squarely on its feet of anatomy, physiology, psychology and pathology. In brief, a small proportion of the time now spent in memorizing a vast mass of pre-clinical details—how soon forgotten!—should be given over to some psychology as an integral part of biology, physiology and pathology. Then in the clinical years at hospital, psychological medicine—not specialized psychiatry—should be studied by tutorial class and in the patient, both child and adult. One hopes that as a result of the establishment this year of a chair and department of psychology at this university, some such move will not be long delayed. In the course of a recent letter to me, Professor D. R. MacCalman, of the University of Aberdeen, where his lectureship in psychopathology in the medical school has recently been made a full chair, writes as follows:

The teaching programme in mental health is in process of evolution. The teaching consists of lectures and clinical demonstrations given throughout the medical course. It may seem split up, but it has the advantage of relating the subject at a number of important points to various branches of medicine and of keeping before the student's mind the all-important fact that patients are human beings. My first course consists of ten lectures at the end of second year. These are designed to give some idea of normal psychology and a good deal of emphasis is placed on the development of character and personality throughout childhood. I meet these students again in the introductory clinical work two terms later. This course is designed to teach the student how to examine patients. I give them nine hours of lecture demonstrations and each student examines and reports on a few selected cases. In fourth year they have ten lectures on psychopathology covering the neuroses and minor forms of mental illness. In the following term they have thirty hours at the Mental Hospital designed to give some knowledge of the psychoses and graver forms of mental illness as they would affect the general practitioner. In the following two terms the class is divided into sections of ten students and each section spends each morning for two weeks on what I have called clinical mental health. Each student is given a number of cases both children and adult of a type occurring in general practice. The student reports his findings to the group, who thus see and hear about the various types of neurosis, delinquency and somatic disorder. They also visit selected homes and such social institutions as children's courts, schools, special classes, social agencies, Ministry of Labour, factories, etc. Environmental influences both at home and in

employment are strongly brought before them. The course ends with a series of "leaderless group" discussions, which have produced most interesting material. This is very popular with students and provides the best method of teaching. Finally I take part in the paediatric course by giving a weekly demonstration of child guidance cases for one term. As regards examinations, I have tried not to burden the student too much in this way, but I hope to follow out the recommendations of the Goodenough Committee that a professional examination in all aspects of mental health should be held as a subsidiary subject of the final examination. In all, throughout their course the student receives about one hundred hours' instruction.

In Melbourne the student now spends less than half this time learning psychological medicine, and as there is no examination to test his knowledge, regards it with more or less disinterest. This letter is quoted only as an example; many medical schools have similar programmes, and at some—notably at the Johns Hopkins School at Baltimore—even greater attention is paid to this subject.

I should like to add here a few words on facilities for post-graduate medical training. In 1930 the Edinburgh University established a chair in child health. Since then the Universities of Durham, Liverpool and London have followed suit. Over the same period the Royal Colleges of Physicians and Surgeons have conjointly conducted examinations for a diploma in child health—the "D.C.H." When we finally make similar advances in this country, I hope the university authorities will combine paediatrics and child hygiene with child psychology and psychiatry in the scope of the lectureship or professorship and the diploma course. Such a combination seems logical in theory, as it treats the child as a whole, and from personal experience I believe it works well in practice.

To reminisce for a moment: My post-graduate studies were confined to general medicine and paediatrics. After spending a few years in practice, as it became apparent that psychological treatment was an integral part of medicine, I joined a psychiatric clinic. Thus, over the past seventeen years by observation, reading and discussion I have gradually reached a stage at which I feel moderately proficient in treating children's disorders, including the handling of their parents. There should be quicker and better ways of learning than this.

Though I have dealt with the proper training of medical practitioners, it is but an example; the need is equally great for all professional workers in this field. Such teaching should be based on the normal, healthy child, and the dangers of over-zealous search for the abnormal should be pointed out.

It may be thought that in advocating a wide extension of the best possible services for children outside their homes, whilst claiming the influence of home life to be of paramount importance, I am guilty of inconsistency. It is held by some that anything of the kind must weaken the bonds of home life and parental responsibility, and thus be harmful. Such a view is, I think, obscurantist and not in accord with all the facts of present-day living. The result will depend on how the assistance is given. It is a question of balance and method. If services are of the "hand-out" variety, if the belief is encouraged that everything should be free, if all have rights but none have duties, home and community life could be demoralized. Signs and portents are indeed apparent of such trends today. But I think the common sense and independent spirit of the people are an ultimate safeguard against such decadence. On the other hand, that parents, and more particularly mothers, require help in bringing up young children these days is only too obvious. Properly conducted (as they are here), nursery schools, crèches, playgrounds and similar agencies are complementary to home life. Their extension, for many reasons—not the least of which is the need for population—is an urgent necessity. I do agree that it should always be the aim of social workers to assist parents in their natural calling rather than to attempt to take their place.

THE LONSDALE HEALTH SCHOOL.

Up to this point these lectures have dealt with the pre-school years. What is sown during this period is reaped in later childhood and adolescence. Alongside the home

and the community the school now becomes one of the most important influences on the child's progress. In the time remaining this evening, it is proposed to describe a somewhat novel kind of school where the attempt was made to observe the health and personality of selected groups of children living under present-day social conditions in Melbourne, and to put into practice some of the theories of child development. I refer to the Lonsdale Health School conducted by the Victorian National Fitness Council. This body was set up shortly before the last war in accordance with a Federal Government enactment. Under this, each State Fitness Council is nominated by its local government, the State Minister of Health being the titular head. Amongst various objectives laid down at Federal conferences, one was the establishment of health camps for under-privileged children. During the progress of the war it was not possible to obtain sites, equipment or staff; but meanwhile a sum of money was accumulated for future use. Early in 1945, after negotiations with army authorities, an excellent camp was made available at Lonsdale Bay, with a beach front facing Port Phillip Heads. Apart from a general direction that such camps were to enable young people to take part in health activities, with a view to promoting fitness, the council had a free hand in formulating its policy. It was considered that children living in crowded industrial districts, whose health appeared to be suffering as a result, were in greatest need of help. It was therefore decided to conduct a health school, to which groups of these children would be sent for a period of rest, recreation and remedial activities, both physical and mental. Funds were in hand for the first year's work, which was looked upon as a time for observation and experiment. A sub-committee of six, with myself as chairman, had already been appointed by the council to draw up plans and supervise the running of the school, in conjunction with the organizer (Dr. A. G. Scholes) and his staff, all questions of policy and finance having to be approved by the council. We had a twofold aim: firstly, to restore to health children suffering from malnutrition and from the physical and mental effects of illness or unsuitable housing and home conditions; secondly, to keep accurate records and to ascertain the staff, programme, diet, domestic arrangements, the best average period in camp, and the funds necessary for the first objective. I shall not go into the difficulties experienced in the first part of 1945 in engaging suitable staff and obtaining equipment, nor attempt to give a full historical account of the year's operations. Such details, together with a comprehensive summary and review, have been prepared by the staff and are available at National Fitness Council headquarters. My remarks will be more in the nature of a mosaic of impressions of the year's work. The school commenced on a small scale and, as rapidly as circumstances permitted, the number of children was increased to 50 at a time. At first we were uncertain of the optimum number to take, and also of the best age for the children. Experience led to the conclusion that about 50 was the most suitable number to handle, and that from ten to twelve years was the best age group. One camp was held each month, but with the time necessary for preparation and staff leave the actual period of stay was usually a few days under four weeks. The first camp commenced on August 1, 1945, with 30 boys, the site was used for other purposes in December, and the school closed on September 30, 1946. In the three last camps we were in process of closing and were able to take only 20 at a time. The total number of children was 446, spread over 13 camps, five camps accommodating the full complement of 50. Of the 13, seven were for boys and six for girls. In planning for staff and activities the basic idea was to make the maximum impact practicable in the time, and as far as possible to study each child's needs individually. A balance was preserved between physical, mental and social behaviour, and throughout as much informality, freedom and self-government were allowed as were compatible with efficient working. At the same time every child was kept under supervision. In combined activities groups were of small size.

This was a comprehensive and ambitious programme, and it was realized that success would depend on the ability

of the staff in charge. We aimed at having men and women possessing both general knowledge of and aptitude for child care, together with some special ability. As we wished to conduct the school without female domestic help and with only the additional assistance of a male cook and a general duties man, all would be required to take a share in house and domestic duties and be to some extent interchangeable. Personnel and salaries *per annum* were as follows:

Chief of staff (male)	£ 500
Matron (female)	400
Physical education tutor (male)	350
Physical education tutor (female)	300
Craft tutor (female)	200
Recreation leader (male)	240
Recreation leader (female)	200
Secretary and assistant (female)	200
Cook (male)	300
Assistant and general duties man	250

All these had board and lodging provided at the camp.

As the staff had to be on duty for twenty-four hours a day, adequate leave was required. This meant that out of ten, only eight were working at once. In addition to the staff in residence the local doctor attended twice a week and in emergencies, at an average cost of £150 a year. The composition of the staff was not originally as above stated. At first a physio-therapist was engaged; but experience showed that there was not enough work for her and that for children requiring individual physio-therapy one month was not long enough. There was also at times a tendency for some of those appointed for special duties to regard domestic tasks as "*infra dig.*", and as changes occurred persons with rather more general usefulness were preferred.

Being a former army camp, the buildings—apart from administration units—consisted of standard-sized galvanized iron huts. Four of these were used as dormitories on a house system. Each house took from 10 to 13 children under a member of staff as house-mother for the girls or house-father for the boys. Every effort was made to bring about a family atmosphere. For the first few nights, when some of the children felt strange or homesick, the house parents slept at the huts; later, one parent slept in different huts on a roster basis. Personal interest and pride in housekeeping were encouraged in various ways that appeal to children. Inter-house competitions were held in connexion with the matron's daily inspection, points were given for punctuality, and sports were held; coloured ribbons were awarded daily, small prizes at the end of camp, and a sports pennant to be held until it was won by another house. After the first week house captains and minor officials were elected. In other respects also the layout and amenities were adequate and in many respects excellent. Cooking, refrigeration, storage, sanitary and bathing facilities were those of a first-rate army camp. Officers' and administration blocks were used for staff residential purposes, and two sections were converted into houses for married members of the staff. For the children there was a large hall with a stage, used for indoor physical education, dancing, concerts and dramatic work. A library, craftroom, museum, medical inspection and sick-room and huts for noisy games were provided. These buildings partly surrounded a large playing oval, which by the time the camp was closed was well grassed. Between this and the sea was higher ground covered with ti-tree. Furnishing and decoration were steadily improved, flowers and shrubs were grown, and generally the place came to look less like military barracks and more like a pleasant country settlement.

The programme was regularly under review by staff and committee, and changes were made in the light of experience. A basic day was soon evolved, which, subject to minor alterations due to such factors as the weather, formed the backbone of activities, as follows:

7.15: Wake-up.
7.45: Setters (by roster) to set tables for breakfast.
8.0: Breakfast.
8.30: Washing-up and medical parade.
9.0: Toilet.

9.15: Preparations for house inspection, bed-making, *et cetera*.

10.0: Assembly—short health talk.

10.30: Physical education, craft work or games.

11.30: Swim or showers, morning fruit.

12.0: School period for basic educational subjects.

12.45: Table-setting.

1.0: Dinner.

1.45: Wash-up.

2.0: Half-hour rest.

2.30: Physical education, craft or games.

3.30: Afternoon fruit and break.

4.0: Physical education, craft or games.

5.0: Prepare for tea, set tables; library or medical inspection.

5.30: Tea.

6.15: Wash-up.

6.45: Free—singing, walks, gardening *et cetera*.

7.30: Showers.

8.0: Bed.

8.30: Lights out.

Tuesdays, Thursdays, Fridays and some Saturdays were spent in this way. Monday was wash-day, and general cleaning and tidying up of buildings and grounds took precedence over routine. Washing was no mean event, a check on one occasion showing that 789 articles had been handled in one day. Only bedding was sent to a laundry. Airing and mending were also sizeable tasks. Wednesday was picnic day, and on one evening a week children wrote letters home. Saturday was sports day, with inter-house contests in the afternoon and the concert in the evening. Sunday was planned to be free and enjoyable, with as little routine as possible. Church was attended in the morning. Rest, walks, swimming, reading and so on occupied the afternoon. Party teas were often held on Sunday evening and birthdays were celebrated.

The main activities require some amplification. First, craftwork: the object was to introduce interesting hobbies incorporating handcraft skill, imagination and cultural value. Clay was modelled into pottery and masks; painting and poker-work designing, leather-work, such as the making of purses and tobacco pouches, weaving and carpentry were done. These sessions were probably the most popular of all, and although most of the children showed little originality or concentration, there were some notable exceptions. All seemed keen to make things and take something home. Many puppets were made with clay-modelled heads, and some of the puppet shows produced were good examples of spontaneous self-expression. The boys showed particular keenness for all craftwork and delighted in the opportunity of handling common tools. There was a good library in the children's lounge. Interest in this varied. Most groups were eager to read and hurried through their duties so as to have more time before lights out, and liked someone to read aloud to them. In some of the older and more difficult groups of boys, many had little idea of settling down to read, much preferring snatches of "comics", of which vast numbers were received through the post from their families. Concerts and the like were always enthusiastically attended, as also were picnics away from the camp. Here a little nature lore was picked up, and as well odds and ends were collected for the museum.

Because many of the groups were missing their ordinary schooling, a period of one hour was set aside each week day for instruction in English and arithmetic. As we did not employ a teacher specially for this purpose, it is likely that the best results were not obtained. An added difficulty was the divergent standard of educational attainments, the children ranging from pupils in an opportunity grade to those in Grade VI. Part of the records and case histories kept for each child included the results of the Australian Council for Educational Research non-verbal intelligence test. This is simple to perform and was used as an aid in planning each child's work. The tests were not carried out by an expert psychologist. Although the intelligence quotients obtained were mostly within normal limits, a few were as high as 120 and some between 70 and 80. The programme covering physical education and games, diet, hygiene and medical care is outside the scope of these lectures. Suffice it to say that this aspect was adequately met, recreational value being sought without undue

emphasis on physical training. Partly by good luck, there were no instances of serious illness or accident amongst the 445 children, though first aid took from two to three hours a day.

Religious observance formed an integral part of camp life and was carried out in agreement with local ministers. Church was attended on Sundays, a talk was given from time to time, and grace was said at meals. With some groups this went smoothly enough; but with others difficulties arose. This was partly because of the problem of interesting and holding the attention of some of the children who appeared to have no reverence for anything or anybody, and partly because of the varying approach of different denominations. In this regard I should like to quote from a report on "Youth Service after the War",^(a) prepared for the Board of Education in England by the Youth Advisory Council and published in 1943:

We have hesitated whether or not to treat religion in youth work under a separate heading. For we wish to avoid entirely the suggestion that religion can be segregated from other activities or other parts of the general environment; and we therefore wish to avoid such phrases as "the place of religion in youth work". Our view is that religion must form the background of home, school, work and leisure alike. But, on balance, we have thought it best to bring together under a separate heading certain specific points, with the caution that these points in no sense cover the subject, but are rather to be regarded as details. The churches themselves have youth organizations that are active and widespread. Most of the voluntary societies have a religious foundation, and though this foundation may sometimes appear to have been neglected, it is a matter to which today very considerable attention is being paid. But in the development of the Youth Service a new field of influence is being opened up, and a much wider opportunity is being given. It is natural that this should be so, for between religion, as we have known it in this country, and the life of a club or other voluntary unit, there are certain aims in common. Both value individual personality; both assert also that the full individual life can only be realized in community. We wish the opportunities which the Youth Service presents to be so used that the future citizens of our country may have that fundamental respect for their neighbours as individual personalities upon which alone a healthy democratic society can be built up. For all this there is needed a leadership that is skilled, informed and sympathetic. In the informal methods of religious education there is a great need for experiment. We are concerned to see preserved, or born, a genuinely Christian civilization. This we take to mean, not a civilization all of whose members are necessarily professing Christians, but one in which the Christian belief in God and all that is consequent upon it of human liberty and brotherhood, the Christ-like ideal of life, and the preservation of the fundamental ideas of truth, goodness and beauty, set the tone for society. In this attempt at a definition the word "liberty" is an essential one, for it includes liberty for those who are not Christians to think and worship in the ways which seem to them best. In the circumstances of today, when democracy is being defended by young men and women of many faiths, such an insistence is all the more important. In the Youth Service the rights of minority opinion must be scrupulously safeguarded. But, especially, we are persuaded that religion is a positive need for young people of all ages we are considering. Only very rarely is the religious tendency, in its broadest sense, absent; and it is nothing more than the due of every young person that religious opportunities should be provided. We say "opportunities", for here, of course, if anywhere in this whole field the free choice of the individual is sacred. But it cannot be right that where recreational and physical needs are supplied religious opportunities should be lacking. It has been the experience of many of us that one of the principal reasons why so many young people are indifferent to the claims of Christianity lies in the lack of unity between the different Christian denominations. We welcome therefore the many signs of cooperation between them that are now manifest in our land, and hope that as the Youth Service develops it may provide a field in which Church and State may together work for the greater good of youth.

The selection of children was carried out in consultation with school authorities. Headmasters of two or more State schools in a district nominated children most in need and likely to benefit. The Chief of Staff visited these schools in advance and also interviewed the parents whenever

possible. Selections were also made through the Catholic Education office, and individual children were recommended by appropriate agencies. For purposes of record and individual case study a comprehensive application form was filled in—social and health records by parents, educational status by the teacher. Further information added to the camp record cards consisted of a summary of the interview with the parent, particularly relating to home conditions, and follow-up information obtained from the child in camp, covering hobbies, clubs, interests and diet. On the physical side, weight, height, chest and physical capacities based on capacity tests both on arrival at camp and before departure were recorded, with front and side view photographs taken at the beginning and end of camp. The idea of keeping such records was not only as an aid in handling the child and to check progress, but for their possible research value.

As you will have noticed from the salaries list, work of this kind cannot be done cheaply. In the first twelve months the total expenditure amounted to £9,199. Of this, £1,670 was of a non-recurring nature on equipment and other initial items. The sum of £1,041 was collected in camp fees, based on an overall charge of £3 per head per camp; in cases of hardship this was reduced to half or to less still in special instances. Remissions for the year amounted to only 10%, it being found that parents preferred to make some contribution to their child's upkeep. When these sums were subtracted, the annual operating costs remaining were approximately £6,500. Owing to the smaller numbers at some of the earlier and later camps, the *per capita* costs were higher in the first year than they would have been subsequently. Over the five camps accommodating 50 children, running expenses worked out at about 10s. per child per day. On the basis of twelve such camps a year, totalling 600 children, annual running costs, after the deduction of expected receipts from fees, would be in the vicinity of £7,000. It was on such a budget that the National Fitness Council approached the State Government for an increased grant to enable the work to continue. The request was refused and as a result the school was closed. In passing I might point out that the Council receives both a Federal and a State grant. At first sight it might appear that such a position would guarantee ample funds. Actually each "passes the buck" to the other. The Federal grant is still the same as it was at first and during the war, in spite of greatly increased opportunities and demands for assistance, and in spite of increased salary rates and costs generally. The State grant has been increased from £4,000 to £8,000, which is still niggardly and less than in New South Wales. All this leads one to conclude that there is a tendency for governments to start such health programmes with somewhat of a flourish and then leave them unsupported. It has been said that this is because children have no votes; but I am loath to think that the shortest way to a cabinet minister's heart is through his seat.

An important question still remains to be asked: were worthwhile results obtained? This cannot be fully answered without observation and follow-up over a longer period; but both committee and staff were surprised at the extent to which almost all the children responded, and as time went on they became satisfied that the project should be continued. So that you may realize that these opinions were not just wishful thinking, I propose to quote, with only minor verbal alterations, from the last pages of a report prepared by Miss Barfus and Mr. Hicks after the school closed last October. Miss Barfus was matron throughout and Mr. Hicks was acting chief over the later months. To them especially, and to the other members of staff who worked so hard and enthusiastically, I should like to express my thanks for a most happy and interesting partnership. In their report,^(a) under the heading "Survey of Children who Passed Through the Health School", they write as follows:

Health and Hygiene.

Many of the children had a wrong outlook on illness; they were used to attending public hospital, and seemed to gain prestige in the eyes of their mates if they were "regular" patients. This type of child loved to attend

medical parade for the slightest scratch. However, we did not discourage children from coming for treatment of slight wounds, as it was found that, if overlooked, these often became infected, and needed constant dressing. The first aid and medical side of the Health School has been interesting. It had been agreed that a trained nurse on the staff would not be necessary, and might have the wrong psychological effect on the children. However, it was proved that the average amount of time taken for first-aid attention was three hours per day for one staff member, and in cases where one or more children were confined to bed, either for additional rest (nervous cases) or on account of some foot injury or stomach upset, it was difficult to spare anyone to act as nurse and give the necessary oversight and attention. It was found that a number of children did not eat the butter ration provided for them. They said they did not eat butter at home. The staff insisted that they eat their ration for health's sake, and after a week of cajoling they generally took their portion without protest. Apparently the mothers use the butter allowance for the father's sandwiches and other purposes, and the children get none. One wonders what the mother's reactions would be on the children's return home. A girl of eleven whose mother ran a boarding-house gave her usual diet as a cup of tea for breakfast, a pie and water for lunch, and a bowl of soup with bread for tea, and her appearance did not belie her statement. This child changed during the period of the camp from a slim, wan, tired-looking girl with rings under her eyes, and no energy, to a happy, healthy youngster with a pleasant sense of humour, a certain stability of character, and a charming manner. The knowledge of hygiene, personal and otherwise, was very weak, and the children needed to be taught the principles of cleanliness from the beginning. This was often their first experience with a towel of their own, and many had not previously used toothbrush or paste; few of them had face-washers. If house mothers were not continually vigilant, they would find, perhaps after a week, that several children still had their new toothbrushes in their original cartons, safely tucked away in lockers. There was the case of a boy who explained that he and his brother shared one toothbrush and it was "his turn", so he had been allowed to bring it with him to camp. In each of the girls' groups, children were discovered with head-lice, the largest incidence being 25 girls in a camp of 50. Many were reported to have had "weak kidneys from birth", and in some camps the percentage of bed-wetters was very high. It was found, however, that these were generally nervy types, and the condition often improved (to the surprise of the children) with adequate rest and psychological treatment. One little girl, a professional dancer—a good type of girl—was found to be completely exhausted from night work and from pantomime dancing during the school vacation. It was interesting and rewarding to watch the change in this child as she gradually became rested and relaxed. Another small girl arrived with two lots of tablets she was to take, one lot being sleeping tablets (under doctor's orders—she was attending hospital). Encouraged by the staff to feel that in camp she would become so healthy that she could do without such artificial aid, this child voluntarily gave up the sleeping tablets after the fifth night, and slept solidly. In nearly every camp there was at least one child with "bad ears". All such cases were treated in accordance with the local doctor's directions, and the parents were notified as to his recommendations for further treatment if required.

Temperamental Aspect.

The "temperamental" treatment of some of the children assumed as much importance as the medical treatment of others. The fact that the staff members were completely dissociated from the known environment at home—were neither parents, nor teachers, nor medical advisers—often helped in dealing with abnormal or mishandled temperaments. Some of the children required a complete change of treatment—a different method of attack; others simply needed a confidant whom they could trust, and who would not "nag". Some needed a new avenue of self-expression, a new outlet, and this was often furnished through craft work, dramatics, collecting, writing or drawing for the camp magazine. The majority, however, of those children who were "difficult" responded to rest and good sleep, fresh air, and healthy relaxation. The number of nervy children was unhappily high, and for these a much longer period than four weeks would be needed to restore them to normal health and build up a reserve with which to face more effectively the conditions of their home life. A percentage of 28.6 of the children handled were in a highly strung state on arrival. A few were in such a very nervous condition that they needed not only considerably longer time, but very

careful personal treatment—a kind of re-education which we had neither the time nor the training to give; but in all these cases the children showed a distinctly quietened condition at the end of the camp. In certain cases where the children were of a good type, and seemed at first not to need the experience of a camp like this, it was noted that the character training involved in taking responsibility and learning *esprit de corps* and leadership was fitting them better to use their gifts and qualities in more helpful directions. Quite a number of the children were "used to being away from home"; some had been previously to other camps. Comparatively few of them had ever been for what we would consider a holiday in the country or at the seaside. Home-sickness was common among girls and boys alike—some of the cases were nervy children, some had been sickly and used to their mother fussing over them continually; some were simply spoilt and used to having their own way, and twisting their parents round their little fingers, and did not relish the new form of control. However, every case of home-sickness responded to the efforts of the staff, who felt that these children particularly needed the experience in self-control afforded by the camp. In only four instances were children taken home before the end of camp, and in each case the parent or other relation appeared unexpectedly and offered the child the chance of going home. The four who succumbed to this temptation were weak types; one girl had been in hospital a good deal of her life, and her mother was apparently over-anxious; the mother of another confessed to being lonely and wanting the child at home; the third appeared to be a case of an Air Force brother coming home and wanting his little playmate. The fourth was a shy, quiet, lonely boy, who, after wetting the bed one night, evidently panicked at this unusual occurrence, hid the wet sheet, dressed, and started off through the bush for "home". Reaching the township three miles away, he asked the way at the post office, and was directed to the police station, where he was looked after until a member of staff could go to collect him. It transpired that he had a half-caste mother and a strict father, had written telling his mother he wanted to come home; his father thereupon sent the mother down at once to take him home "so that he would not be a nuisance". The mother did this against her will, but feared to go against the husband, so the boy was taken home, not sure then whether he wanted to go or not. His departure was much regretted, as it was felt that he could have been helped considerably if he had stayed the full time in camp. In contrast to these cases, there were many times when parents visited the camp, and the children would not hear of the suggestion that they might want to return home.

Social Aspect.

An almost complete absence of the ordinary courtesies was apparent throughout all groups. On arrival in camp, the general method of carrying on conversation was for half a dozen children to shout questions or statements all at once as soon as an adult appeared on the horizon. If an adult was talking to another staff member or to a child, there was no question of "excuse me" if another child wished to speak; he or she would just crash into the conversation without any hesitation. The initial table-manners were generally shocking; "please" and "thank you" were rarely heard, nobody thought of passing food along the table, or took notice of any requests (often shouted) to do so. The act of eating or drinking left much to be desired. However, the table-manners expected by the staff and demonstrated meticulously by them seemed so novel to the children, that, after the first week, they could be noticed instructing each other in the right way. Few of the children appeared to realize that the many little things the staff did for them, such as cleaning, mending, pressing, providing odd things needed (often out of one's own pocket), were really extra privileges granted voluntarily. Some children seemed almost to demand service. Tale-bearing appeared to be a common pastime with all the girls; in the case of boys, the term "pimping" seemed to be the masculine counterpart. The less bright children resorted to this method of attracting attention to themselves as bearers of "news". It was easily seen that in most homes the parents did not expect immediate response to their orders. Immediate obedience to requests from the staff members was rare, and it was quite usual, after giving an order, to hear the protest: "Oh—do we hafta?" However, there was one case of immediate response which is worth recording. A small girl passing a staff member announced: "I'm going to get me swimmin' togs." Staff member: "Get MY swimming togs." Small girl, helpfully: "All right, I'll bring yours too!" Both girls and boys usually became interested in doing household jobs well, and liked to be praised for good work. Those among the girls who proved

particularly dull and slow at learning in school or physical education exercises, or games, often responded to domestic training, and one felt that a definite and carefully planned domestic training would probably make good home helpers of some of these not-very-bright girls. The training in tidiness was difficult, probably for the reason that at home the children did not have any separate place in which to keep their things. Muddy shoes would, during the first two or three days, often be found on the same shelf as clean handkerchiefs and underclothes; and bedside lockers were a favourite store for seaweed, shells and other treasures. The children gradually learned to use the special shelves provided for the keeping of such personal acquisitions. By the end of the second week there was usually an outburst of enthusiastic polishing and cleaning—brass-work, windows, shoes, etc.—and one knew the children really appreciated the results achieved by their own efforts in this direction. Lack of good sportsmanship was common, and it is noteworthy that in no group was there any indication that this was an ideal to be aimed at, and it was difficult to explain what we were wanting. One wonders whether professionalism in sport has brought about this unexpected attitude in the children. Throughout the camps, it was usually found to be the children above the age of twelve years who, because of their changing outlook, fomented trouble both for themselves and for their comrades. Those who had reached the age of thirteen were inclined to bully the younger and weaker ones; were often non-cooperative towards the staff, and sought an outlet for their developing bodily strength in rough games which were not in line with the needs of the rest of the group. It was noticed that the older boys showed more interest in physical development than in health. Younger children responded more readily in applying what they were taught. Members of girls' groups usually showed interest in improving their posture.

Approximately 8.5% of the children attending the Health School during the experimental fourteen months could be classed as poor material, on whom the training given could not make much impression, owing to their slow rate of response, and the short time we had them in camp. Only five children (four boys and one girl) were of a type on which the training provided may be said to have made no impression whatever. One of the boys, too old for the group, was a potential habitual delinquent; two others were slightly subnormal, always attracting attention by misdemeanours or hysterical behaviour; one boy was a consistent shirker, liar and instigator, with a pleasant enough manner, but wallowing brazenly in disobedience. The girl was subnormal, an exhibitionist type, stirring up trouble, and apparently not profiting in any way by experience. It was noticeable that games involving powers of observation, memory, deduction, self-control, often either fell flat or became a hopeless muddle. This was ascribed to lack of concentration, which was, it is contended, the main cause of what appeared to be disobedience. It was obvious that many of the children could not concentrate for more than one or two minutes, and they often did not listen to the answers given to their queries. If they did listen, they forgot again immediately, and often "forgot" directions because they had not concentrated sufficiently to absorb the meaning of the instruction. It was felt by all staff members that a form of liaison with the children who have passed through the camps was imperative. This liaison should have begun immediately they returned to their homes, and encouragement should have been given to those children who, with help, would willingly have tried to apply in their daily life what they had learned at the camp in the way of hygiene, diet, sportsmanship and so on. As it was, much of the incessant work of the staff at the camp with individual children must have been annihilated on return to unsatisfactory home conditions.

Thumbnail Sketches of Some Types of Children who Attended the Health School.

Boys.

N.G.: A pale, thin, listless boy, not enough energy to be naughty. Schoolmaster reported on boy's return that he had "come alive", made excellent progress and reached the top of his grade. Two other boys at the same school had gained so much from their sojourn at the camp that they were able to qualify for High School—the teacher said that they could not have done this in the state they were in before coming to camp.

R.C.: A pallid, nervous little lad, hardly spoke for half the camp, made little nervous movements, had poor appetite, seemed quite listless. Encouraged to drink milk and play on the beach, was invited to tea with a local family where he learned to play with the children. Vast improve-

ment in weight and appearance, and became almost skittish towards end of camp.

T.B.: Small wiry boy, used to being beaten with a poker by his grandfather; argumentative, dodged work when he could. An interesting child when he gained confidence in staff; needed careful handling, but responded well, and left with a less bitter attitude towards adults.

A.K.: Homesick from moment of arrival, in tears most of the day. He had a crooked spine, and was used to being "sick" and in need of his mother's care. Daily requested to be sent home, but bouts of homesickness diminished in intensity and frequency, the boy became helpful and cooperative, and stayed till the end of the camp—a real triumph for him as well as for the staff.

G.S.: A nondescript boy, who developed a distinct personality after being elected as Chalet Captain, and later as Camp President.

C.C.: Tall, pale, thin boy, quiet, obedient, helpful. Family of fourteen—boarding house—"used to housework". Older than his years. Towards end of camp became refreshingly noisy, livelier and "younger".

R.J.: Thin, pale, nervy; impulsive, hot-tempered, argumentative; sensitive and emotional, cried easily. Always in trouble at first with boys and staff. By end of camp showed very great improvement in general attitude to work and to persons, and had uncovered an affectionate and cooperative nature.

L.P.: "Half a girl", the other boys said. Smug, slack, dull, inactive, and often exhibitionist. Seen at school a month after return from camp, showed a great change towards manliness, and schoolmaster spoke highly of improvement.

H.H.: Very highly strung, hysterical—thin, tall, jerky, often in tears at first. Voice rose to a shriek in argument. Caused trouble with other boys. Great trouble taken by all staff members to train his self-control, and some improvement shown in several directions. This boy was not devoid of intelligence, but needed much help and follow-up.

Girls.

M.W.: A spoilt, attractive girl, whose father rang her nearly every day. Her mind seemed almost blank, and she appeared unable to comprehend even short spoken sentences.

O.F.: A bright housewifely little girl, eleven and a quarter years, said that she worked after school for a dressmaker, attending to sales. Gets 10s. per night for this job and sometimes more.

B.L.: Very homesick at first; at home she sleeps with her twin brother, ten and a quarter years.

J.D.: Aged ten and a half years, sweet gentle little girl, sensitive, with a serious complex about bed-wetting, which occurs almost nightly. Would not report this, and was untruthful when questioned. On three occasions hid the wet sheets in queer places. Said she had been taunted by another girl on arrival. Mother was written to re this at end of camp.

D.M.: Presented a challenge to social services. Aged eleven years, through bad company (older girl) got into trouble with police for shoplifting. Had mother who was apparently mentally abnormal and father fought with mother almost daily (fisticuffs, etc.). D. had a hot temper and at beginning of camp was perpetually in trouble, "bashing" smaller girls or threatening to do so. She made tremendous effort to improve, but would need continued help in view of home conditions.

D.G. had a recurring nightmare of great violence; this was discovered through her waking the other girls in her terror. After being encouraged to tell all details of the dream, and working out what might be the cause, she was taken to sleep in the staff quarters—in matron's room the first night, then next door, and gradually reassured she was able to return to her own house and sleep quietly.

R.B., who had her tenth birthday in camp, was in the habit of sleeping with a neighbour, an old lady of seventy, half-blind. The child's mother looked after the sick woman in the daytime, but R. slept with her so that she could give the woman her medicine if she had a "turn" in the night. This child was given a second period at the camp, and responded well.

M.H.: A squabbling, tearful, disobedient mischief-maker, always causing troubles among her mates. Discovered that her mother was bed-ridden. M. has to do the housework after school, and is not sympathetic towards mother. Success was achieved with this child by putting her to sleep for three nights in a spare room in staff quarters. Undisturbed rest had hoped-for result of calming her, and she was happy to return to normal routine, and caused little subsequent trouble.

Comment.

From this quotation it is clear that the Lonsdale Health School was something more than a holiday camp. Holiday camps are wanted; but I submit that there is a place for a specialized type of organization to deal with more than ordinarily under-privileged children. On this point it is of interest that the organizer of the National Fitness Council (Dr. A. G. Scholes), who visited New Zealand subsequent to the closure of Camp Lonsdale, reports⁽⁶⁾ as follows concerning health camps in that country:

New Zealand's first health camp was established in 1919, and since that time there has been continual experimentation and development until today health camps are recognized as an essential part of the country's health and education services, and there is one in or near each capital city of the principal provinces, Auckland, Wellington, Canterbury and Otago. These are being improved and extended (a new camp to be built at Pakuranga, Auckland, will cost £45,000) and four others are to be established in smaller centres. It is interesting to note that the methods adopted, and the conclusions reached in New Zealand after a long period of development tally almost completely with the result of the National Fitness Council's experiment at Point Lonsdale.

The principal points of comparison are:

(a) Cooperation between Health and Education Departments—e.g., Health Department administers, inspects and maintains standards, appoints matron and sub-matron; Education Department appoints specially qualified teachers, provides school building and equipment.

(b) Liberal staffing scale is insisted upon by Health Department. One member of staff to every four children is considered desirable, but at present one to five is allowed.

Besides the nursing and teaching staff as indicated in (a), "aids", i.e., specially selected girls and women, domestic and outdoor staff are employed.

(c) Period in camp. This has gradually been lengthened, until now the minimum is six weeks, any shorter term being considered ineffective. Children are frequently retained for a second term. At one camp, Roxburgh, the minimum period is three months.

(d) *Per capita* running costs. Thirty shillings to 45s. per week, according to numbers and type of camp (this does not include nurses' and teachers' salaries, which are paid departmentally). The Otaki financial statement showed that approximately half the annual expenditure consisted of salaries.

(e) Other minor but noteworthy resemblances are:

I. Agreement that a camp of small numbers is the most effective. Fifty appears to be the most generally acceptable number.

II. No visits by parents. One camp allowed one visit in the latter half of the period.

III. No food parcels (our own limited pocket money and canteen system was discussed with interest).

IV. Regular medical inspection (weekly in most camps).

V. Agreement that the chief value of the camps lies in mental and social adjustment of the children who attend.

VI. Brief report to parent on development and "follow-up" carried out chiefly by school nurses, district nurses and visiting teachers.

(f) Interesting differences:

I. New Zealand health camps are mixed. Boys and girls of all ages, 6-13 years, attend the same camp.

II. Their camps are essentially schools—longer periods spent in the class-room (of the open-air type); but curriculum and times are varied according to children's needs, weather *et cetera*.

III. Less emphasis than at Point Lonsdale on such extra school activities as craftwork, learning games, nature study.

IV. No "house" organization in dormitories, dining and recreative activities.

V. Less domestic work done by the children themselves.

Considerable interest was displayed by officials and staff members in the last three aspects of the work at Point Lonsdale.

CONCLUSION.

To me, one of the most striking and unfortunate ways in which lack of privilege, of opportunity for health, was shown in very many of the children we saw was their poor moral sense and defective character development. I do not see how they could grow up into happy, useful members of society without a good deal of help—help which at present they are not getting. This reflection

brings me back to a statement in the first of these lectures, that "health and education cannot be divorced from morality"; at present in this country they are, to much too great an extent. To place the subject on a sensible foundation and see it in proportion, and to get away from the unreal shadow-sparring of "secular versus religious" partisans, I suggest that psychologists, educationists and other students and moulders of child character extend their efforts and their research beyond the level of emotional and intellectual activity to the realms of moral development. At present such work is, I think, called social anthropology. Along these lines we have many interesting studies already, like Margaret Mead's "Coming of Age in Samoa". What I should like to see would be a book on "Coming of Age in Melbourne", perhaps by a Samoan. Anthropology begins at home, one might say. Actually it is only in comparatively recent years that psychologists and psychiatrists have become frightened of or not interested in morality, as a proper subject for study, that is to say. In the early years of this century one of the greatest psychiatrists was Paul Dubois of France. As well as his works on psychological medicine, he wrote a book called "L'éducation de soi-même". In 1909 an excellent translation of this was printed in America, excellent except for the title, which with publisher's insight became "Self-Control and How to Secure It". In the early pages of this book Dubois states that true happiness is in direct proportion to moral development. This belief is elaborated in chapters on the following subjects: "moral clear-sightedness", "egoism and altruism", "meditation", "tolerance", "indulgence", "humility", "moderation", "patience", "courage", "chastity", "sincerity", "kindness", and "idealism". We hear little about these virtues today. Why can they not be studied in as objective and scientific a manner as possible; and, what is more important, be deliberately taught to the young? Western civilization was for long thought—by the Westerns—to be the highest yet reached. A contemplation of present-day events must make one wonder, as Spengler and Toynbee have wondered, where we are heading. "Advance Australia, Where?" as *The Bulletin* queried. Such thoughts may seem a far cry from child development and mental health, a subject often kept in a watertight compartment, and discussed rather naively as if it were an end in itself. But if you believe that the aim of life is to be lived and that it is an art to live it well, to draw from it the sum of happiness and achievement, such ideas are a logical, an inevitable extension. To counteract any complacency that may be felt on this aspect I shall conclude with a slightly abbreviated extract from Lin Yutang's recent book "Between Tears and Laughter". He is speaking of the mission many Westerners consider they have, to help the rest of the world by Europeanizing it. Here is what he says:

And what are you going to Europeanize the world with? Standards of living of course. Curious one does not say standards of morals. This gospel assumes that material prosperity brings happiness. But suppose some people prefer to remain as they are, what have they lost? Suppose the Hottentot does not care to drink a quart of milk a day? Suppose the Oriental woman does not mind washing her clothes on the river bank, whilst chatting with her neighbours; and thinks it pleasanter than washing by machine in a hot cellar? Suppose a man who lives in a mud hut has the culture of a self-respecting man? Suppose he perceives the subtle truth that the human is capable of infinite adjustments and that the hard life may be healthier than the easy one? In other words, suppose material standards of living are not worth raising—at least at the price of class hatred, collectivism, loss of freedom and periodic war.

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SOME OBSERVATIONS ON BLOOD TRANSFUSION IN A HIGHLY MALARIOUS AREA.¹

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THE transfusion of blood from potentially malarious donors has already been fully dealt with elsewhere, but as most of the work has been experimental, it is thought that some observations from the field may be of value.

The average quantity of blood given to each patient in this series was 1,400 millilitres from local donors, and one litre when stored blood was used. Each of these quantities has been regarded as a unit and called "a transfusion".

All cases of malaria dealt with in this paper were of the malignant tertian form. It was uncommon in this area to find benign tertian parasites, and when they were found, malignant tertian parasites were always present as well.

There are five methods of suppressing, minimizing or preventing malaria after blood transfusion in a potentially malarious area: (i) by the use of stored blood collected in non-malarious areas; (ii) by selection of donors showing no signs or symptoms of malaria; (iii) by premedication of donors with "Atebrin"; (iv) by the giving of large quantities of "Atebrin" to the recipient; (v) by the use of a routine course of quinine, "Atebrin" and "Plasmoquine" after blood transfusion.

The Use of Stored Blood.

In June, 1945, a good line of communication by air had been established, and it was decided to try to use stored blood, as the malarial rate was rising, and a higher percentage of cases of malaria after transfusion was occurring than is shown in the series for March (see below). The use of stored blood would also save the necessity of taking blood from fighting troops.

The blood was collected in Sydney from Red Cross voluntary donors, and reached an Australian general hospital at Aitape, New Guinea, twice a week, three to five days after collection. At the hospital 216 litres of this blood were given, and eight rigors occurred.

The blood was packed in ice at the hospital and was driven seven miles over a rough road to the air-strip; then it travelled for forty-five minutes by aircraft and by "native carry" for an hour. On its arrival most of the ice had usually melted, and ice-cream packed in the same container was soft. No hæmolysis was ever observable in the blood, and the time interval after collection was never greater than ten days.

Eight transfusions of this blood were given and eight rigors occurred, so the use of stored blood was abandoned.

It was considered that the blood was too old, in spite of the optimistically late expiry date on the label, and that the normal rate of destruction of the red cells had been accelerated by the mechanical effects of a rough journey and a slight rise in temperature.

Selection of Donors.

As far as possible, donors were selected who had never suffered from overt malaria. A thick film was prepared from each one, and any whose blood showed malarial parasites were rejected. However, there was overwhelming evidence that all troops in the area had suppressed malaria, mostly of the malignant tertian variety.

Premedication of Donors.

Throughout this series, in addition to their routine suppressive "Atebrin" therapy, the aim was to give all

donors 0.3 gramme of "Atebrin" four hours before blood was taken. This was possible whenever the surgical team was working at a battalion headquarters and advanced warning was received. In many cases it was not possible, the donors arriving at the same time as a casualty in urgent need of a transfusion. This will always be a common occurrence, so that the premedication of donors is often impracticable.

The mean plasma "Atebrin" level in a group of 100 men who have taken 0.1 gramme of "Atebrin" per day for over six weeks is 21 microgrammes per litre. This is usually sufficient to suppress malaria. In a group taking 0.2 gramme per day, the mean level is 42 microgrammes per litre. In this group the plasma "Atebrin" levels, two hours and four hours after 0.3 gramme of "Atebrin" had been taken, would be 57 microgrammes per litre and 47 microgrammes per litre respectively.

However, there is a certain amount of experimental evidence to show that no practicable plasma "Atebrin" level can be produced in the donor to prevent transmission of malaria by his blood, if it contained asexual parasites.

The Giving of "Atebrin" to the Recipient.

All battle casualties as a routine measure received 0.5 gramme of "Atebrin" by mouth on their admission to hospital, and 0.5 gramme the following morning. The transfusion usually took place between these doses. When a later transfusion was needed, the same dosage was given before and after transfusion. In cases in which a rapid "Atebrin" effect was desired, or in which the oral route was contraindicated, an intramuscular injection of a similar dose was used.

The results obtained from the combined use of these three methods were fairly satisfactory early in the campaign. The month of March, 1945, is selected as an example. During this time the troops in the area were taking 0.2 gramme of "Atebrin" per day, and the weekly malaria rate averaged 0.4 per thousand. Nine transfusions were given and one man developed overt malaria.

This man had a compound comminuted fracture of the surgical neck of the right humerus, and a simple fracture of the mid-shaft. He was wounded, given a blood transfusion and operated on in one afternoon. The following morning he was carried for four hours over a difficult track. He developed a typical attack of malaria of moderate severity three days after the blood transfusion. Examination of a blood slide revealed malignant tertian parasites. He responded well to treatment, the acute symptoms disappearing in three days.

The Use of Routine Malarial Treatment after Blood Transfusion.

During the period from June 11 to July 15, 1945, the average weekly malarial rate in the area was 22 per thousand. The troops were taking 0.2 gramme of "Atebrin" per day. An additional indication of the highly malarious nature of the area is given by the following experiment.

Forty apparently healthy soldiers, including combatant and medical officers, were selected at random. One blood slide was prepared from each person. In fourteen slides parasites of malignant tertian malaria were found.

The second, third and fourth precautions were observed in eight of the blood transfusions given during this period. All eight subjects developed malignant tertian malaria. These eight subjects all had wounds in the chest or abdomen or in both areas, or large compound fractures. They were received early, three to four hours after being wounded, and were not moved after operation. Malaria was diagnosed on the occurrence of an unexplained temperature rise and on positive findings in a blood film. The attacks were mild to moderate in severity and came on from one to four days after blood transfusion; all were of malignant tertian malaria. Only three patients had typical rigors. All responded well to routine malarial treatment, most of the symptoms attributable to malaria disappearing in three or four days.

It is pointed out at this stage that previous experimental work has dealt with the transfusion of non-malarious patients with blood from malarious donors. Under active service conditions, not only is the recipient seriously

¹ This paper was forwarded to Army Headquarters in August, 1945, with the request that it be published in THE MEDICAL JOURNAL OF AUSTRALIA. Its publication was deferred for military reasons.

wounded, but his own blood is probably more potentially malarious than that of a carefully selected donor. Whether the condition of the patient is of more importance than that of the donor is not known; but it is obvious that the two separate factors cannot be divorced from one another.

In view of the failure of suppressive treatment with "Atebrin", it was decided to give all recipients a routine malaria treatment starting either immediately before or immediately after transfusion, whichever was the more convenient. All other precautions were also carried out. A further 27 transfusions were given. No patient developed overt malaria.

It is realized that the indiscriminate use of the standard malaria treatment is unwise; but any disadvantage is more than outweighed by the fact that it not only prevents malaria, but also acts as an excellent tonic for casualties who are so heavily infected that they are wobbling on the brink of a malarial attack.

The routine antimalarial course was as follows: (i) first, second and third days, quinine, 40 grains daily; (ii) fourth and fifth days, "Atebrin", 0.6 gramme daily; (iii) sixth, seventh, eighth and ninth days, "Atebrin", 0.4 gramme daily; (iv) tenth, eleventh and twelfth days, "Atebrin", 0.2 gramme daily, and "Plasmoquine", 0.02 gramme daily.

Summary.

1. Methods of preventing malaria after blood transfusion in malarious areas are discussed.

2. Selection of donors and "Atebrin" treatment of both donors and recipients are satisfactory when the weekly malarial rate is low; but they do not prevent malaria when suppression by "Atebrin" is inadequate and when the incidence of malignant tertian malaria is high.

3. The use of stored blood in forward areas is unsatisfactory when the line of communication is such that the blood is severely shaken in transit, is stored at a temperature well above 4° F. and has to be stored for periods longer than a week.

4. The use of the routine quinine, "Atebrin" and "Plasmoquine" malaria treatment of the recipient after blood transfusion in a highly malarious area has two advantages: it prevents malaria, and it also improves the general health of the patient.

Acknowledgements.

I wish to thank Sister Freeman, Colonel Ian Wood and Lieutenant-Colonel C. R. B. Blackburn for their help in collecting information. No library was available in the area where this paper was written, and I must apologize for the lack of bibliography to those who will recognize some of their previous work. Finally, I am indebted to the Director-General of Medical Services, Major-General S. R. Burston, who has given permission for this paper to be published.

PUERPERAL TETANUS: A REPORT OF TWO CASES, ONE ASSOCIATED WITH A PULMONARY EMBOLUS INFECTED WITH CLOSTRIDIUM TETANI; ALSO A CASE REPORT OF POST-ABORTIONAL TETANUS.

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DE LEE⁽¹⁾ considers tetanus the rarest of all infections in the puerperium and certainly the number of reported cases are few. Thomas⁽²⁾ states that death rates from tetanus following parturition differ very little from those of the female population as a whole in the British Isles, and he gives the figure for both classes during the years from 1927 to 1937 as being 1 in 700,000. Le Doze is quoted as having collected in 1936 19 cases from French literature, fourteen of which followed abortion. Many women are said to die in India every year from undiagnosed or untreated tetanus, largely due to the appalling hygienic

conditions and primitive village midwifery; in fact Knight remarks that it is a wonder many more cases do not occur under such conditions.

It is obvious that tetanus following induced abortion should be much more common than in normal parturition. Thomas, however, with experience of 1,000 cases following self-induced abortion, states that in England, in spite of conditions highly conducive to infection, tetanus associated with criminal abortions is very rare. Although cases have been recorded in the literature, tetanus following induced abortion is said to be rare in America.

Bruce Maclean and Challen⁽³⁾ reported a case of puerperal tetanus in 1941, and they state that at the time of writing they were unable to find literature regarding any other cases previously reported in the British Isles. Post-partum tetanus has been described mainly in America, France, China and Germany. In Maclean's case the tetanus occurred fifteen days after the birth of a normal child by forceps delivery. Although the organism could not be recovered in cultures and smears, Maclean assumed that the infection with *Clostridium tetani* entered via the lacerated vaginal tissues. Duncan⁽⁴⁾ writing in 1942, reported a fatal case of puerperal tetanus developing ten days after a normal delivery not associated with any tear or instrumentation. Morgan⁽⁵⁾ mentions in 1938 a case of fatal tetanus following a miscarriage in which *Clostridium tetani* was recovered from cultures taken from the uterus. Unfortunately no details of the clinical history or post-mortem findings are given.

Two cases of puerperal tetanus are now reported, the first of which had several unusual features. It was complicated by pulmonary embolism, and *Clostridium tetani* was cultured from the infarcted area in the lung as well as from the cervix uteri.

Case 1.

Clinical History.

Mrs. X, aged twenty-seven years, had one child aged four years and gave a history of a miscarriage fourteen months previously. Her prenatal period had been uneventful. On December 30, 1946, she was admitted to a private hospital at 4 a.m. in strong labour. Without pelvic examination or instrumentation she was delivered one hour later of a normal male child. A small first degree tear was sustained in the fourchette in which two catgut sutures were inserted.

She was allowed out of bed for a short period twice daily from January 4, 1947, and, except for cracked nipples, her puerperium was uneventful till the night of January 6, when the patient complained of pain under the right breast. On the morning of January 7 she experienced severe pain in the right side of the chest and later difficulty in breathing.

Careful examination disclosed no abnormal physical signs and no evidence of shock was apparent, but a tentative diagnosis of diaphragmatic pleurisy was made. The temperature and pulse were normal. On January 8 the patient felt better and was again allowed up.

On the following day the pain was again severe and the temperature elevated, so full doses of sulphadiazine were given. On January 10 dullness and a friction rub at the right base were heard, the pain was still present, and the temperature raised. On January 11 the patient looked rather drawn and anxious and had jerky painful respiration. Examination showed the right chest to have diminished breath sounds all over, dullness over the lower lobe, a small area of bronchial breathing posteriorly and a friction rub over the lower right anterior axillary line. The patient had marked abdominal distension for which the passage of a rectal tube and half a millilitre of pituitrin were ordered. On January 12 the distension was much less, but the chest signs were more extensive, so penicillin was commenced with 40,000 units every three hours, later reduced to 20,000 every three hours. At this time the patient was considered to have a pulmonary infarct with associated pneumonia.

At 1.30 a.m. on January 13 she complained of severe pain in the back of her neck and head, and that she could not open her mouth properly. Examination showed a slight neck stiffness, slight trismus and overactive knee jerks, but her fever had lessened and the patient actually looked better. Her condition, however, got worse, and by 8 a.m. she showed marked trismus, neck rigidity and head retraction. She was afebrile, her colour and pulse were normal, and she was clear and bright in her mind, but experienced difficulty in talking. A lumbar puncture was performed under local anaesthesia and clear fluid under slightly increased pressure was withdrawn. A diagnosis of tetanus

was made, and at 1 p.m. on January 13 after 70,000 units of tetanus antitoxin had been administered she was transferred to the Brisbane General Hospital. In the evening the patient had a slight spasm which lasted twenty seconds, during which her back arched and her colour became a dusky grey. She was given intravenously a further 50,000 units of antitoxin. On January 14 the patient's condition deteriorated and spasms occurred as frequently as every fifteen minutes. These were controlled by the intravenous use of "Sodium Pentothal". In spite of a further 50,000 units of antitoxin given intravenously, the patient died at 7.40 p.m.

Post-Mortem Examination.

An autopsy was carried out nineteen hours after death. The body was that of a young woman of medium build and fair nutrition.

At the base of the right lung there was a dark triangular area measuring 3.8 by 3.8 by 5.0 centimetres with the appearance of an infarct. The remainder of the lower lobe of the right lung was consolidated and intensely congested, with the appearance of red hepatization. The consolidated area sank in water. In the right pleural cavity six ounces of blood-stained fluid were found, and recent fibrinous pleurisy was present at the base of the right lung. The left lung was congested.

The uterus measured 10.0 by 13.3 by 3.8 centimetres. The cervix uteri was soft and congested and from the external os a slight sanguineous discharge was issuing. The endometrium was normal in appearance and not offensive, but the placental area in the fundus uteri was hemorrhagic and friable. The ovaries were normal. In the pouch of Douglas a little free blood was seen and the tissues in this area appeared congested. The small tear in the fourchette appeared healed and the sutures were still intact.

The brain was slightly edematous but otherwise normal, and nothing abnormal was seen in the meninges or cerebro-spinal fluid. Apart from the spleen, which was enlarged, soft and friable, the other organs appeared normal.

Death was ascribed to (a) tetanus, (b) lobar pneumonia, (c) right pulmonary infarction.

Bacteriological Investigations.—During the post-mortem examination, cerebro-spinal fluid was collected into a sterile tube and swabbings were taken as follows: (a) two swabbings from the fundus uteri; (b) two swabbings from the cervix uteri; (c) one swabbing from the tear in the fourchette (after this had been opened up); (d) one swabbing from the pouch of Douglas; and (e) one swabbing from the infarcted area at the base of the right lung. These swabs were carefully labelled and inoculated directly into cooked meat medium and incubated anaerobically in a MacIntosh-Fildes jar. All cultures comprised a mixed growth, but those from the cervix and the infarcted area in the right lung grew Gram-positive bacilli with terminal spores, morphologically indistinguishable from *Clostridium tetani*. These two cultures were heated in a water bath for thirty minutes at 77° to 80° C. and then subcultured into cooked meat, nutrient broth and nutrient agar. Pure cultures of the sporing organism were thus obtained from the lung and cervix uteri. A pair of guinea-pigs were injected intramuscularly with half a millilitre of each cooked meat culture, one pig from each pair receiving five hundred units of antitoxin just prior to the injection of the culture. The test pigs were found dead within twenty-one hours, whereas the controls remained symptomless. Biochemically the organism conformed completely with *Clostridium tetani*. Of the cerebro-spinal fluid collected post mortem, 1.5 millilitres were injected intramuscularly into each of two guinea-pigs, one of which was protected, but both pigs remained unaffected.

Discussion.

Pneumonia is a not uncommon and fatal complication in tetanus, but I have been unable to find in the literature any record of a case of puerperal tetanus complicated by pulmonary embolus, infected or otherwise.

The means by which this patient became infected with *Clostridium tetani* are debatable. The recovery of the organism on culture from the cervix uteri, and the absence of any history of injury preceding her delivery suggest that the mischief probably commenced in her genital tract. In the culture from the fourchette no *Clostridium tetani* were found, and the fact that catgut from the same spool was used without mishap the same day for another patient who had a similar tear would seem to show that the suture material was not the cause of the infection. The catgut was heat sterilized and supplied by a well-known and reputable firm. No pelvic examination was carried out

at the time of delivery and no instrumentation was employed, so infection by this means can be excluded.

The Tetanus Committee of the Royal College of Obstetricians and Gynaecologists⁽¹⁾ in June, 1941, published a report on the anaerobic infection of vulval pads, on the reinfection of cotton-wool and cellulose tissues after sterilization in manufacture, and on the difficulty of eliminating spore-bearing organisms unless an absolutely rigid technique of sterilization was followed. The report showed that cotton-wool and, still more, wood-wool (cellulose) as supplied to the public contained many spore-bearing bacilli. In the past catgut has been blamed; but dressings and pads may possibly have been responsible for many of the cases of puerperal tetanus. They may have been the cause in this case, but it seems unlikely.

The possibility of autoinfection of the genital tract from the bowel must be considered, and this raises the point of how frequently tetanus bacilli are found in the human intestine. Spores enter the intestine of man as a result of consumption of uncooked vegetables, salads, radishes *et cetera*, and also of fruit which has fallen. Varying figures are given by various workers. Fildes⁽²⁾ recovered *Clostridium tetani* in 1% of faeces examined, while Kerrin examined 208 samples of faeces from town children without recovering the organism from any specimen. Broeck and Bauer⁽³⁾ are quoted as having found *Clostridium tetani* in 34.7% of stools from 78 persons examined in Peking. These great discrepancies are probably due to various factors, including types of diet and local soil prevalence, apart from variations in the technique employed. The bacilli are frequent in regions where temperatures are high, as in the tropics, where cases of puerperal and neonatal tetanus (through the umbilicus) are most common.

Taylor and Wright⁽⁴⁾ make the generalization that micro-organisms present in the vagina before delivery seldom cause puerperal infection. Whether they include *Clostridium tetani* in this generalization is not known. It is well known that spores of *Clostridium tetani* can lie dormant for months or years; whether tetanus spores can lie latent in the cervix or vagina and cause mischief only when a suitable environment for germination is created (for example, as a result of the trauma incident in parturition) it is hard to say.

The pulmonary embolism was an unusual complication and the infection of this embolism by *Clostridium tetani* must be unique.

Zinsser and Bayne-Jones⁽⁵⁾ in their textbook quote Tizzoni and Crete, who succeeded in cultivating tetanus bacilli from the spleen and heart blood of infected human beings. They also mention the work of Tarozzi and Canfora, who showed that spores might be transported from the site of inoculation to the liver, spleen and other organs, and there lie dormant. These workers found that if injury to the organ was subsequently produced experimentally and dead tissue or blood clot formed, the spores might develop and tetanus ensue.

It is possible in this case that the tetanus spores had been lying dormant in the lung and that the pulmonary embolus provided the damage to this organ necessary for their activation. Whether this was the explanation or whether the organisms were carried directly in the embolus, probably from the pelvic veins, is an interesting point. If the latter were the case, the infection might have reached the embolus from the cervix uteri or from the bowel direct.

Case II.

Clinical History.

Mrs. M., a healthy primipara, aged twenty-three years, was taken to a private hospital on January 31, 1946, for her confinement. A female child weighing nine pounds was born at 3 a.m. on February 2 after a somewhat difficult delivery, which was effected by a small episiotomy and the low application of forceps. Uterine inertia supervened with retention of the placenta and considerable loss of blood. About one hour later manual removal of the placenta was performed and the episiotomy wound was sutured with two catgut sutures, neither of which was buried.

The episiotomy wound was healing and the puerperium proceeded without any abnormality until the night of February 8, when the patient experienced vague pain and

stiffness in front of the ears. On February 9 her jaw became stiff, and she found that she could not open her mouth and was unable to swallow normally. Her condition grew worse, and at 5.30 p.m. on February 9 she was transferred to the Brisbane General Hospital.

On examination, the patient was found to have pronounced trismus and also stiffness of the neck and back. The trismus became more pronounced during the examination. Two hundred thousand units of tetanus antitoxin were administered intravenously, and penicillin therapy was commenced, 50,000 units being given immediately followed by 20,000 units every three hours. During the night the intravenous administration of saline solution was commenced. On February 10 the patient was having frequent spasms and sweating profusely, and appeared cyanotic. Her condition steadily deteriorated, and she died at 9.50 a.m.

Post-Mortem Examination.

An autopsy was carried out twenty-nine hours after death.

The uterus was found to fill the pelvic cavity and protruded just above the brim of the pelvis. The endometrium appeared normal, but some placental debris was found in the right upper angle. The episiotomy wound appeared to be healing satisfactorily, but it caused some asymmetry of the vaginal orifice. The remains of the catgut sutures were found in the vagina.

The lungs were congested and relatively airless, but no significant abnormality was found in the other organs.

Material for culture was taken from the base of the episiotomy wound and also from the remains of the catgut in the vagina. These tubes were unfortunately treated as one specimen in the laboratory. *Clostridium tetani* was found to be present in the cultures obtained from the pooled and heated supernatant fluid from the original tubes after anaerobic incubation. It is most unfortunate that the exact site from which the organism was recovered could not be determined in this case. The catgut used at the hospital was bacteriologically examined, but was found sterile after adequate aerobic and anaerobic incubation.

Discussion.

The incubation period of the tetanus in this case and the absence of any history of trauma would certainly suggest that infection occurred at some time during parturition or very early in the puerperium. The birth was difficult, requiring instrumentation and manual removal of the placenta, both of which manœuvres might carry *Clostridium tetani* into the tissues should any flaw in the aseptic technique have occurred. The catgut was found to be sterile. Autoinfection could easily occur in a case such as this, in which an episiotomy wound would be liable to faecal contamination. Data regarding the degree of faecal contamination with *Clostridium tetani* are so scanty that an investigation of a cross-section of the population in this country might prove both interesting and fruitful.

Case III: Tetanus following Induced Abortion.

Tetanus is more likely to follow induced abortion than normal childbirth, and in most cases the precipitating cause is easier to find. As an example of tetanus following induced abortion the following clinical history and autopsy findings are reported.

Clinical History.

Miss P. was admitted to the Brisbane General Hospital on March 21, 1942. She was found to have an incomplete abortion of a nine-weeks fetus and had been losing a great amount of blood *per vaginam*. It was discovered that an abortion had been induced on March 13 (eight days prior to her admission to hospital), probably by means of a syringe. On her admission to hospital the patient had no abdominal pain; but she complained of chest pain and of inability to eat properly, and said that her jaws felt stiff. She also stated that a vaginal discharge was present which increased when she got up, but was only slight at the time. The patient also complained of pains in the back and in the shoulder region.

On examination, she was a thin, pale girl, and no relevant abnormality was found in the cardio-vascular or respiratory systems. Her abdomen was not tender, but felt rather tense and rigid. Pelvic examination revealed a soft *cervix uteri*, which partially admitted one finger; the body of the uterus was not felt. Stiffness of the jaws was apparent. A provisional diagnosis of tetanus was made and 50,000 units of tetanus antitoxin were given intramuscularly.

On March 22 the jaws were stiffer and could be opened only 2.5 centimetres. The abdominal wall was rigid. Slight spasms occurred during the morning, but these became generalized in the afternoon. On March 23 the patient had two spasms during the morning, and a slight blood loss was noted *per vaginam*. A curettage was carried out under chloroform anaesthesia. A soft, soggy and enlarged uterus was found; the fornices were clear. Placental debris and mucus were removed. During the evening the spasms became more frequent and severe. Fifty thousand units of tetanus antitoxin were given intravenously, the intravenous administration of glucose-saline solution was commenced, and basal anaesthesia was used in an endeavour to control the spasms. From that time the patient's condition deteriorated. The temperature was raised at first to 102° F. and later to 105.6° F. and generalized and frequent spasms occurred, until she died at 7.10 a.m. on March 26 despite sedation and further serum therapy.

Cultures from the placental tissue were prepared by the General Hospital laboratory, and *Clostridium tetani* was recovered.

Post-Mortem Examination.

An autopsy was carried out two hours after death.

Rigor mortis was present partially in the thighs, calves, feet and arms, but not in the fingers, toes or neck. In the brain pial ecchymoses were present in the left parietal cortex, and external congestion was present.

The heart was normal except for some toxic spilling of the muscle. In the lungs a patch of consolidation was present, with collapse and pus in the bronchioles; the patch occupied nearly half of the lower lobe of the right lung. Small patches of collapse were present in the lower lobe of the left lung, whilst slight congestion was found elsewhere. Pus was present in the larger bronchi of both lungs.

The uterus measured 8.7 by 5.0 by 3.1 centimetres, and the muscle was soft and pale. A little bruising was present in the muscle at the external os *uteri*. The placental site was recognizable on the anterior wall. This was covered by a thin layer of shaggy material and blood clots. In the *cervix uteri* some erosion was present, and thick blood-stained discharge was issuing from the external os. There was no purulent inflammation of the endometrium. No injury was present in the vagina. The ovaries were normal, and the right ovary contained a *corpus luteum*.

In the liver some toxic spilling and fatty change were present, but no significant abnormality was seen in the spleen, kidneys, suprarenals or pancreas.

Death was stated to be due to (i) tetanus, (ii) bronchopneumonia and (iii) induced abortion.

Cultures were prepared from the endometrium at the post-mortem examination, but *Clostridium tetani* was not found in them.

Discussion.

In this case almost certainly no aseptic precautions were taken during the induction of the abortion. The chances of *Clostridium tetani* being introduced were much greater than in either of the two former cases. The placental debris remaining after an incomplete abortion would provide a suitable nidus in which any introduced spores might flourish. Then again the incubation period, the absence of any signs or history of external trauma and the recovery of the *Clostridium* from the placental debris definitely localize the origin of the infection to the genital tract.

Summary.

1. A review of the literature shows that very few cases of puerperal tetanus have been recorded, and most of these were not confirmed bacteriologically. Tetanus is less common after normal parturition than after abortion.
2. A case is recorded in which, after normal parturition, a woman developed pulmonary embolism on the seventh day and on the fourteenth day symptoms of tetanus, from which she died. *Clostridium tetani* was recovered *post mortem* from the infarct in the lung and also from the *cervix uteri*. Recovery of *Clostridium tetani* from a pulmonary infarct appears to be unique.
3. It is difficult to decide whether puerperal tetanus arises from the use of unsterile catgut pads *et cetera* or by autoinfection from the patient's bowel. These possibilities are discussed in relation to the former case.
4. A case is reported in which, after an instrumental delivery and manual removal of the placenta, symptoms of tetanus, which proved fatal, developed on the ninth day.

5. Tetanus, which proved fatal, is recorded in a case in which it followed an induced abortion. Symptoms developed on the eighth day and death occurred on the thirteenth day after the abortion.

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REFRIGERATION ANÆSTHESIA, WITH REPORT OF A CASE.

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THE history of refrigeration as a means of anaesthesia is a long one. Macaulay writes that Bacon thought "that snow might be used with advantage for the purpose of preventing animal substances from putrefying". Bertholin experimented with the anaesthetic effect of cold in the middle of the seventeenth century. The anaesthetic effects of cold were described by Jean Larrey, Napoleon's surgeon, who carried out painless amputations on soldiers during the winter campaign of 1807. Refrigeration was not applied to clinical practice because of the development of the easier methods of inhalation, spinal and intravenous anaesthesia. Brooks and Duncan⁽¹⁾ showed that temperature reduction in the presence of a tourniquet prolonged survival of tissue. By the cooling of the part tissue metabolism was reduced to its lowest in a manner "comparable to hibernation". Allen⁽²⁾ made the first studies of the value of refrigeration in cases of arteriosclerotic gangrene, severe trauma and sepsis, and has given new impetus to the use of this mode of anaesthesia in limb amputation.

Indications for Use.

Both English and American authors⁽³⁾⁽⁴⁾ agree that the method is indicated in poor surgical risks: (a) for aged patients with organic heart disease; (b) in the case of a severely traumatized limb with associated injuries, when amputation is indicated; (c) in the presence of arteriosclerosis, thrombosis and embolism; (d) in the presence of severe sepsis and gas gangrene; (e) in the treatment of a severely crushed limb when the tourniquet and refrigeration may save life.

Spinal anaesthesia according to Yudin⁽⁵⁾ is said to be contraindicated because a sudden fall in blood pressure may be fatal. Local anaesthesia is a long process in thigh operations.

Advantages of Refrigeration Anaesthesia for Amputation.⁽⁶⁾

The following may be mentioned as the advantages of refrigeration anaesthesia for amputations:

- (i) It inhibits primary and secondary shock.
- (ii) Complete anaesthesia is possible, with absence of pain during the operation and in the post-operative period.
- (iii) It permits surgical operation to be carried out in poor risk cases that used to be considered hopeless.
- (iv) It lowers the incidence of infection and mortality.
- (v) It renders post-operative convalescence less stormy.
- (vi) Temperature, pulse and respiration do not show any variation during an operation under "refrigeration" anaesthesia.
- (vii) It permits the delaying of amputation until associated injuries and conditions which are threatening life receive the necessary treatment.

The Procedure Used.

The procedure used was as follows. The patient's leg was shaved the evening before operation. No skin preparation was carried out. Morphine sulphate was given on the morning of operation twenty minutes before anaesthesia began. Chipped ice was wrapped around the thigh at a level six inches above the amputation site (ten inches above the upper border of the patella). The ice completely encircled the limb and covered a band approximately two to three inches wide. This sheath of ice was left in position for thirty minutes. The temperature of this area of skin taken with a laboratory thermometer was 15° C. This dulled sensation for the application of the tourniquet. During the last five minutes of this operation the limb was elevated to expedite venous drainage. Over this cold area a three-inch wide rubber bandage, doubled lengthwise, was firmly applied to occlude blood vessels without marking the skin. Two consecutive overlapping turns were made. Complete occlusion of vessels is an essential point stressed by most writers.

The leg was next wrapped in a rubber mackintosh and surrounded by chipped ice, completely covering the limb from just above the tourniquet to the toes. The edges of the sheet were then overlapped. Distally the rubber sheet formed a trough which allowed water to run into a dish.

The head of the bed was elevated on ten-inch blocks to allow drainage of melted ice. The temperature of the skin was taken at hourly intervals. Optimum range for operation according to literature is from 4° to 8° C., though a reasonable upper limit is 10° C.⁽⁶⁾

It must be understood that the limb is "refrigerated", not frozen. There is, according to Horner,⁽⁶⁾ an anaesthesia of protoplasm rather than of nerves. "Dry ice", carbon dioxide snow, or salt in the ice should never be used, since any of these cause destruction of the tissue by freezing. The time required for anaesthesia varies with leg thickness. Two to six hours are times quoted by various authors.⁽³⁾⁽⁷⁾

Case History.

The patient, Mr. R.R., aged sixty-seven years, was admitted to Ryde Hospital under the care of Dr. Sinclair on January 31, 1947. He stated he had been digging in a garden when he had a sudden severe pain in the back of his left calf. The pain extended from the thigh to the back of the heel and along the sole of his left foot. He complained that the left leg from the knee down felt "dead". Specific interrogation revealed that he had been suffering from intermittent claudication and dyspnoea on climbing hills for eighteen months. Examination revealed a man of stated age, rolling about in severe pain. The radial artery was palpable, its beat regular in rate and rhythm. The systolic blood pressure was 170 and the diastolic pressure was 100 millimetres of mercury. The heart was slightly enlarged, but no abnormality was discernible on auscultation. No signs of congestive failure

were present. The *dorsalis pedis* pulses were faintly palpable in both feet.

Examination of the central nervous system showed that the left knee jerk and ankle jerk were absent. The patient was unable to move the left leg, possibly because of pain. Kernig's sign was present in the left leg. There was no lumbar pain or tenderness. The calf was very tender to deep pressure and superficial sensation was lost below the left knee, but the area was not well localized.

Orthopaedic examination of the locomotor system gave negative results.

The past history revealed that the patient had suffered from a coronary occlusion three months prior to his present illness.

Diagnosis at this stage was uncertain because of confusing signs in the central nervous system. In hospital the pain in the leg was diminished by the use of guarded heat and elevation. Lumbar puncture and X-ray examination of the pelvis and lumbosacral region were carried out, but all revealed no abnormality.

Five days after the patient's admission to hospital a bruise-like area appeared on the outer side of the left leg and the sole of the left foot. On the seventh day the knee jerk and the ankle jerk returned and sensation returned to the upper quarter of the leg. By about the ninth day the toes showed obvious moist gangrene, the patient was running a temperature up to 102° F. and the state of the leg was stationary. Lower thigh amputation was advised by the honorary orthopaedic surgeon.

Following the above technique the patient was given a quarter of a grain of morphine sulphate at 10 o'clock a.m., twenty minutes before anaesthesia was commenced. He complained of pain at the site of the applied tourniquet despite initial cooling of the skin and the hypodermic injection of morphine. A further hypodermic injection of morphine sulphate, one-sixth of a grain, was given three-quarters of an hour after the first. This relieved the pain at the tourniquet site, but a dull pain at the junction of the gangrenous and non-gangrenous portions of the limb was complained of by the patient. After half an hour the pain had subsided and the skin temperature of the leg, taken with a laboratory thermometer, which could register from -20° C. to 100° C., was 12° C. After two hours the skin temperature was 10° C. There was no appreciation of pain or touch in the leg below the tourniquet site, and the patient, though drowsy, could be awakened by the spoken word. Sensation in the other leg was normal. One-sixth of a grain of morphine sulphate was given one hour before the patient left the ward for the operating theatre. The temperature of the limb at this stage (five hours after the leg was ensheathed in ice) averaged 8° C. The total quantity of ice used to this stage was two large household blocks.

The operative procedure was as follows. The patient was placed on the table with the leg still encased in ice. This was removed and the leg was dried to the level of the tourniquet. The skin was cleaned with ether soap, ether and pure "Dettol". The leg was amputated four inches above the upper border of the patella. The sciatic nerve was drawn down and severed. No pain was experienced by the patient.

After ligation of the femoral vessels the tourniquet was released. There were only two small areas of oozing which were easily controlled. The skin was closed with silk sutures after the application of penicillin-sulphanilamide powder to the amputation site. One drainage tube was inserted. Large pads were placed over the stump and bandaged into position by gauze bandage. Four pieces of "ZO" strapping were applied to the skin above the dressing to allow for skin traction. An elastic bandage was then applied over all and painted with shellac. On the protruding ends of "ZO" strapping four tapes were sewn. The stump was placed in a Thomas amputation splint and the tapes were tied to the end of the splint to take tension off the sutures.

All instruments used at operation were cooled with cold sterile saline solution. Cold sponges were used.

The patient was returned to the ward three-quarters of an hour after he went to the theatre. He could recognize

his surroundings immediately after the operation and twenty minutes later was sitting up in bed smoking his pipe. Ice in mackintosh pillow covers was placed over the shellac dressing. It was retained in position for the next forty-eight hours. There was no complaint of pain until late that night, when morphine was given with a good result. Penicillin, which had been given along with sulphonamides pre-operatively, was continued. Penicillin was given locally through the drainage tube. When the wound was taken down on the second day only a small amount of staining was present on the pads. The wound appeared to be healing well. The tapes attached to the "ZO" strapping were tightened every four hours to keep up skin traction and to relieve suture tension. Contrary to expectations, there was little if any serum exuded and the drain tube was removed in five days.

Acknowledgements.

I wish to thank Dr. G. Sinclair for his kindness in providing the technique and for permission to publish the case, and Dr. S. Scougall for advice and suggestions. Finally, I wish to thank the nursing staff, whose cooperation made success possible.

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Reports of Cases.

BEHCET'S TRIPLE SYNDROME.

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Clinical Record.

O.I., A MALE patient, aged thirty-six years, of Greek nationality and born in Greece, when examined on April 5, 1945, said that for many years intermittently he had had a rash on the scrotum; the rash took the form of small ulcers which were painful. In association with the ulcers he also had trouble with his eyes, and in addition he had ulcers in the mouth; he also had pimples and "boils" at times. The tongue, palate and buccal mucosa had all been affected at various times, but he had never had any rash elsewhere apart from the pimples and "boils". On a number of occasions he had had painful swelling of the testicle and had been feverish and ill when this happened. Both testes had been affected at different times. His digestion also gave him much trouble. He had had the Wassermann test performed on a number of occasions, and the result was invariably negative. He had never had a chancre or any urethral discharge, and he did not know of anyone with whom he had been associated who had trouble similar to his own.

On examination of the patient he was found to have several small punched-out ulcers on the scrotum. A large area on the left side of the tongue was denuded of

superficial papillae, and there was a small ulcer in that area (geographical tongue). Inflammation was present in his right eye also (conjunctivitis and possibly iritis). He looked pale and his breath was fetid. He was given a mixture of hydrochloric acid with *Liquor Arsenici Hydrochloricus* and a mouth paint of *Liquor Arsenicalis*, glycerin and boric acid. For the scrotal lesions, mercuriochrome (1% solution) and *Lotio Hydrargyri Perchloridi* (1:4,000) were prescribed. Riboflavin (five milligrammes three times a day) was also ordered.

The patient was next examined on April 12, when ulcers were still developing. Sulphathiazole was prescribed for internal use. He was examined again on April 20, when his condition had improved. A five-day course of "Stovarsol" was prescribed and the same local treatment was continued. When he was examined on May 1 the condition of his tongue was still bad, but otherwise he was practically well.

On July 2 a blood count and a test meal examination were made because of the persistent geographical tongue and ulcers in the mouth. The result of the test meal examination was normal, and the blood count gave findings within normal limits. At that stage he was referred to Dr. J. Day, ophthalmic surgeon, who reported that he was suffering from iritis and conjunctivitis.

On August 13 the patient reported back with painful epididymitis of the lower pole on the left side. Sulphathiazole treatment was begun. He felt ill and his temperature was 99° F. The epididymitis and the elevation in temperature gradually subsided. On September 9 a course of penicillin injections was started, and he was given 1,000,000 units. He felt better in himself after them, but ulceration of the mouth was still present. He was then given an alkaline powder after meals for his indigestion, and sulphadiazine was exhibited. He was still taking riboflavin and ascorbic acid, 25 milligrammes three times a day. By September 11 his mouth condition was fairly normal, but more lesions were developing on the scrotum and in the hip regions.

On January 7, 1946, he reported back with a "heavy cold" and joint pains; his mouth was better, but more ulcers had appeared on the scrotum. He was given a sodium salicylate mixture and more sulphadiazine, along with mercuriochrome and *Lotio Hydrargyri Oxycyanidi* (1:5,000) for his scrotum. On March 22 he reported back with more ulceration on the scrotum and in the buccal cavity. He had felt ill and feverish before the ulcers appeared. He was given 0.6 gramme of "Novarsenobillon" as an intravenous injection. On April 4 he reported back with more scrotal ulceration and epididymitis on the right side. He was given more sulphadiazine. When examined on May 3 he was better, but still had buccal and scrotal ulceration. He was given a paint of iodine, zinc iodide and glycerin in water, and larger doses of ascorbic acid were instituted (100 milligrammes, three times a day). (This suggestion was made by Hillier in THE MEDICAL JOURNAL OF AUSTRALIA some months ago.) On June 6 he was much better, but more ulcers had developed a week previously. The patient had ceased to take the ascorbic acid tablets about a week before; he had been free of ulcers while taking the tablets. He was told to take ascorbic acid tablets again. He was then going to Melbourne and leaving Western Australia. At that stage the giving of a course of smallpox vaccine had been contemplated; however, this was not available.

The following is the detailed report of the blood count, the test meal examination and the bacteriological investigations carried out in Perth by Dr. Fergusson Stewart. A blood count was made on June 1, 1945, with the following results: the haemoglobin value was 15.5 grammes per centum (107%), the erythrocytes numbered 4,860,000 per cubic millimetre and the leucocytes numbered 10,800 per cubic millimetre; of the leucocytes, 66% were polymorphonuclear cells, 26% were lymphocytes, 6% were monocytes and 2% were eosinophile cells. The Mantoux test with tuberculin of the second strength produced a moderately positive result. Examination of a dried smear from the scrotum revealed no formed elements. Culture produced a growth of *Staphylococcus albus* and non-

pathogenic diphtheroids. No bacillus of Crassus was seen. The results of the test meal examination made on June 2, 1945, are shown in Table I. The volume of resting juice was 64 millilitres.

TABLE I.

Specimen.	Free Acid.	Total Acid.	Mucus.	Bile.	Blood.
Resting juice	Nil	27.5	++	-	-
After a quarter of an hour	Nil	10.0	+	-	-
After half an hour	15.0	35.0	+	-	-
After three-quarters of an hour	7.5	30.0	+	-	-
After one hour	2.5	25.0	+	-	-
After one and a half hours	Nil	12.5	-	+	-
After two hours	Nil	12.5	-	+	+

These findings are within normal limits. The blood in the last specimen is almost certainly traumatic.

Comment.

In 1904 Lipschütz described "acute vulvar ulcer" associated with aphthous buccal lesions, and separated it from similar conditions. Since then the condition has been accepted as a definite clinical entity.

In 1937 Behcet described the "triple syndrome" of aphthous-like ulcers of the genitals and buccal cavity, associated with eye changes such as conjunctivitis, iritis, uveitis, hypopyon, *et cetera*, ultimately leading to blindness or gross interference with vision. He considered the disease to be of virus origin because of elementary bodies seen in smears.

In the lesions of both syndromes the bacillus of Crassus has been frequently isolated from the ulcers. Numerous reports of cases of Behcet's syndrome have appeared since the original report. In a recent report Katzenellenbogen reported three cases in Arabs; in two of these cases relapsing epididymitis occurred. This worker also drew attention to another feature of the disease—the formation of a papulo-pustule and reaction at the site of needle puncture. He treated the disease in various ways and appears to have benefited the eye condition in only one case by repeated smallpox vaccination. He suggested this method as a prophylactic measure against the development of the eye symptoms which appear to come after the genital and buccal ulceration has been in progress for some years.

In Katzenellenbogen's cases the results of blood counts were within normal limits, and the Wassermann test failed to produce a reaction. Diphtheroids were seen in smears in one case, but no mention was made of the bacillus of Crassus. In a comparative way Katzenellenbogen mentioned the successful treatment of relapsing herpes by smallpox vaccination, and he found no evidence to support the suggestion that the disease might be of tuberculous origin.

Prior to the above mentioned report of cases, Berlin in 1944 described a case which ended fatally; at the post-mortem examination multiple areas of softening and inflammation were found in the brain.

Prosser Thomas described the ophthalmic features of the disease and stressed the serious results to the eye which ultimately cause blindness or gross permanent damage; he drew attention to the fact that the disease was far more common in men than in women.

In the case which I am reporting relapsing epididymitis was associated with the genital, buccal and eye lesions. In addition the patient had geographical tongue and gastric disturbances. No bacillus of Crassus was found in the lesions and the investigations gave essentially negative results apart from a mild positive response to the Mantoux test. This is the first case I have encountered of buccal and genital lesions associated with eye disorders and epididymitis.

Ætiology.

The cause of Behcet's syndrome is not definitely known, but there seems to be a tendency to regard the disease as of virus origin. The significance of the presence of bacillus of Crassus in some of the cases is hard to assess. Some years ago, in the case of a man who had buccal and genital lesions, I isolated the bacillus from an oral lesion. Maybe the bacillus is merely a saprophyte.

Diagnosis.

Behcet's syndrome has to be distinguished from secondary syphilis, moniliasis, *ulcus vulvæ acutum*, diabetic erosions, dyspeptic ulcers, tuberculous lesions, et cetera. The lesions in Behcet's syndrome are not serpiginous like luetic lesions, but are more discrete and punched out in configuration. Secondary skin eruptions, glandular enlargement and a positive response to the Wassermann test would accompany syphilitic ulceration of the mouth and genitals. The result of urine examination, of investigation of scrapings from the ulcers, et cetera, would differentiate other similar ulcerations, except *ulcus vulvæ acutum*.

In the absence of eye lesions or of epididymitis I do not know how *ulcus vulvæ acutum* can be distinguished from Behcet's syndrome. The bacteriological findings in each case are varied and not diagnostic, and the lesions look about the same. Maybe the diseases are the same. Over a period of years I have encountered a number (possibly six) cases of aphthous-like ulcers of the mouth and genitals in men without eye lesions or epididymitis, and I have regarded them in the same way as cases of *ulcus vulvæ acutum*, but occurring in men. All the patients were men aged between twenty and forty years.

I have lost sight of these patients and so cannot say whether or not they subsequently developed eye changes or epididymitis. They were probably suffering from Behcet's syndrome. The last patient with this disease whom I examined (on one occasion only) about twelve months ago was a native-born young southern Italian, who gave a long history of genital and buccal lesions, but had no eye changes or epididymitis.

Treatment.

No treatment seems to have had much influence in my hands. In about 1934 the late Dr. J. E. McGlashan and I vaccinated two patients in the ordinary way; this treatment had no influence on the buccal or genital ulcers. The recent report of the favourable influence of repeated smallpox vaccination on the eye condition in one case seems to hold out some hope of helping patients suffering from Behcet's disease.

Summary.

A case of Behcet's syndrome associated with epididymitis, geographical tongue and gastric disturbances is reported.

The results of pathological investigations were essentially negative.

Attention is drawn to the favourable effect on eye symptoms produced by repeated smallpox vaccinations as reported by Katzenellenbogen.

In the case reported here the increased intake of ascorbic acid may have had some influence in producing a period of about a month of relative freedom from ulcers. If the disease is contagious, it cannot be very much so, otherwise more cases would be encountered.

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Reviews.

TWO HISTORICAL BOOKS ON ANÆSTHESIA.

PREPARED in honour of the first successful demonstration of anaesthesia in general surgery on October 16, 1846, Fulton and Stanton's work, "The Centennial of Surgical Anæsthesia", together with Fulton's reprint of Morton's famous memoir to the French Academy of Sciences, will do much to clarify the somewhat confused history of this great discovery.^{1,2} As stated in its subtitle, the first takes the form of an annotated catalogue covering all significant writings and publications available on the subject in the historical library of the Yale University School of Medicine. The second, which is listed in this catalogue, is Morton's own story of his revelation. It is a dignified statement of his claims, and an effectual reply to the spurious representations of his former adviser, Jackson.

Commencing with references to various ancient and mediæval writings, certain of which show that Dioscorides and Johann Quistorp long anticipated Oliver Wendell Holmes in originating the term "anæsthesia", the catalogue proceeds to the analysis of later works on the discoveries and early therapeutic applications of sulphuric ether and nitrous oxide. The gradually increasing knowledge of their pharmacological actions is traced to the time when their ultimate possibilities dawned almost simultaneously in the minds of several men.

The stage of bitter controversy is now reached, and the authors give a clear and unbiased assessment of the rival claimants' pretensions. Due acknowledgement is accorded the preliminary, if frustrated, efforts of Crawford Long and Horace Wells, and that sinister genius, Charles T. Jackson, gets his just deserts. From the mass of information presented, however, it becomes obvious that William Thomas Green Morton, the Boston dentist, was the true discoverer of surgical anæsthesia. He was the man who, if with certain initial reservations, gave it to mankind, who effectually demonstrated its practicability and safety. Sir William Osler's conclusion, "Morton convinced the world; the credit is his", seems to be amply justified. In all 79 items of source material are quoted in the section on Morton.

The work of Sir James Y. Simpson on chloroform is then examined, reference being made to 25 sources of information. An interesting description of his initial experiments is first given, followed by succinct comments on his subsequent publications. Of much interest in connexion with Simpson's work is Morton's temperate assessment and rejection of chloroform, made shortly after its introduction.

The remaining pages of the catalogue comprise a general bibliography of surgical anæsthesia, including the use of mesmerism, and the application of narcosis in psychiatry. A useful index of authors ends the work. As a concise and informative review of the subject it is unequalled, and it should do much to correct the numerous misapprehensions which various authors, recent and remote, have fostered in this fascinating story.

SURGICAL ANATOMY.

ANOTHER edition (the sixth) of Lee McGregor's "Synopsis of Surgical Anatomy" is a tribute to its popularity among students, especially those proceeding to a higher surgical degree.³

There is little to add to our comments made when the fifth edition appeared. Many of the defects then mentioned have now been corrected. But there are still some notable omissions, such as the exposure of main arteries, the incisions of Henry and Iselin in the hand, and observations of Milligan on the ano-rectal muscles. And there are still some errors, such as the old cadaveric idea about the length of the small bowel, and the statement that azygos means median.

¹"The Centennial of Surgical Anæsthesia. An Annotated Catalogue of Books and Pamphlets bearing on the Early History of Surgical Anæsthesia Exhibited at the Yale Medical Library, October, 1946", compiled by John F. Fulton, M.D., and Madeline E. Stanton, A.B.; 1946. New York: Henry Schuman. 8½" x 6½", pp. 118, with illustration. Price: \$4.00.

²"A Memoir to the Academy of Sciences at Paris on a New Use of Sulphuric Ether", by W. T. G. Morton, of Boston in the United States of America, presented by M. Arago in the autumn of 1847, with a foreword by John F. Fulton; 1946. New York: Henry Schuman. 9½" x 6½", pp. 30. Price: \$1.50.

³"A Synopsis of Surgical Anatomy", by Alexander Lee McGregor, M.Ch. (Edinburgh), F.R.C.S. (England), with a foreword by Sir Harold J. Stiles, K.B.E., F.R.C.S. (Edinburgh); Sixth Edition; 1946. Bristol: John Wright and Sons, Limited; London: Simpkin Marshall (1941), Limited. 7½" x 5", pp. 730, with 699 illustrations by Dr. E. A. Thomas. Price: 25s. net.

The Medical Journal of Australia

SATURDAY, JUNE 14, 1947.

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CONTACT LENSES AND ORTHOPTIC TRAINING: A PLEA FOR UNDERSTANDING AND MODERATION.

MANY a new invention and many a new advance in medicine have been discredited, and sometimes progress has been halted, because, through lack of understanding or from a desire to be up to date or to be in the fashion, medical practitioners have over-used them. Sometimes non-medical persons have exploited a method and often the harm done is intensified because of extravagant claims and appeals to the public in advertisements. The appeal to the public may be on the grounds of simplicity or of some advantage that does not really exist. The appeals often succeed, firstly, because through lack of knowledge there is no power of discrimination, and secondly, because people like to do something, or to dramatize a situation with themselves in a leading role, or just to be different. There are two aspects of ophthalmological practice in which the public needs instruction and in which members of the medical profession may act as guides and counsellors. These are the wearing of contact lenses and the practice of orthoptics.

A good account of the history and of the fitting of contact lenses has been given by Darcy Williams, of Sydney.¹ It should be noted that the term contact glasses was first used because the earlier types were afocal and without refractive power. Since refractive power is almost always present, the term lenses is more appropriate. Though Herschel first suggested the use of contact glasses in 1827, it was not until about 1888 that experiments with them were carried out. Fick was the most prominent of the workers and he envisaged contact glasses for the correction of conical cornea. Williams states that Fick missed little of their possibilities or essentials. Fick obtained assistance in the work from Abbe, who was an associate of Zeiss, of Jena. The glasses made by Zeiss, like those of Fick, were blown. Later Müller, of Wiesbaden, produced glasses which had aspherical curvatures of the

scleral portion, and these gave a considerable degree of comfort. The great drawback was that some hundreds of glasses were required to give a selective range, and that most patients had to go to Wiesbaden for attention. Williams discusses Zeiss glasses at some length. Among the advances made by Zeiss were: the incorporation of corrections on the front of the contact glass, thus making them lenses; the introduction of a smooth transition zone between the corneal and scleral portions where originally this zone was sharp and objectionable; the fabrication of glasses with a raised corneal portion to permit their use in cases of highly conical cornea; the furnishing of optics of reduced size, to allow the correction of higher errors where formerly only the smaller powers could be furnished; and attempts to provide glasses to impressions of individual eyes. Williams points out that though there are certain objections to lenses of the Zeiss type, they are invaluable for determining whether a contact lens will improve vision and for the estimation of refraction in the course of the provision of individually moulded lenses. He thinks it likely that the possibilities of lenses of the Zeiss type have not been fully exploited and that in the future a better range of fittings may be provided. Then comes the work of Dallos, of Budapest, to whom a great deal of the present-day success with contact lenses is due. Dallos devised a method for the taking of impressions with a substance known as "Negacoll". Williams states that this "Negacoll" method is in use in the United States, but he sees certain objections to it as well as to the more recent "Moldite" method. He describes a method of taking impressions of the eye by the spraying on of wax (this method is not often used today), and points out that contact lenses are today not made of glass but of plastic. Contact lenses have been made in Australia for about ten years. The first person to fit individually moulded contact lenses in Australia was J. D. Maude, of Sydney. The method at present employed consists either in the taking of an impression on which a plastic lens is cast or in the selection of a lens by trial and error from castings prepared for previous patients.

This short historical outline has been thought necessary in order that the subject may be seen in its proper perspective and its difficulties appreciated. So far contact lenses have not been widely advertised in Australia. The lenses so far made have been made only on medical instruction. Several points about them need emphasis. In the first place contact lenses are foreign bodies and a tolerance to them must be developed. This tolerance is something like that required for the wearing of an artificial denture, though eyes are more sensitive than jaws. If good vision is obtained with ordinary spectacles, contact lenses do not give better vision. They improve vision only when the surface of the cornea is abnormally shaped. In these circumstances the irregularities of the cornea are neutralized by the added lens which holds a thin film of special fluid between the back of the lens and the surface of the eye. It will be quite clear that persons whose defective vision is the result of disease in the interior of the eye, can expect no improvement with contact lenses. There are in fact very few persons for whom contact lenses are a satisfactory substitute for accurately made spectacles. It has been suggested, and perhaps with reason, that an effort to fit contact lenses is justifiable in the

¹Transactions of the Ophthalmological Society of Australia (British Medical Association), Volume V, 1945, page 72.

case of people who wear unsightly spectacles and have to make public appearances, or of those who are handicapped in aquatic sports by the need to wear spectacles. When we hear that proposals are afoot to sell to the public the idea of wearing contact lenses and of discarding spectacles, it is necessary to point out that there is no guarantee that any person will be able to wear contact lenses successfully. One of the chief difficulties is that cloudiness of vision sometimes develops after the lenses have been worn for an hour or so. This cloudiness may take anything up to an hour to disappear after removal of the contact lenses. Sometimes the lenses give rise to complaints of glare. Contact lenses have to be removed every few hours in order that the solution with which they are filled may be changed. This may be an inconvenience or an annoyance. The cost is fairly high and the lenses require repolishing every year or so. To some people these facts may not seem very important, but they have to be considered. The members of the public should be urged to seek expert advice before they yield to the pressure of advertising salesmen, however specious their arguments may appear.

Our second subject, orthoptics, must be approached with an open and an inquiring mind. Many persons, and perhaps some medical folk, will ask what orthoptics is. Inquirers will find an answer in a special article by Walter B. Lancaster,¹ which has the imprimatur of the Council on Physical Therapy of the American Medical Association. Lancaster observes that orthoptics deals with defective habits of seeing, defects of binocular vision and defects of ocular motility. Orthoptics is a system of treatment, not a system of diagnosis, and Lancaster thinks that for a clear conception of orthoptics it is necessary to have an understanding of the nature of heterotropia and of heterophoria; without such an understanding orthoptic treatment cannot be appreciated. Heterotropia is the same as strabismus, and heterophoria is defined as a tendency of one eye to deviate in one or another direction in consequence of imperfect balance of the ocular muscles. Lancaster explains the difference between the two in the following way: "When one eye is covered and a person looks at an object, the fixation reflex is acting. When both eyes are permitted to look at an object, fusion reflex acts also. In strabismus the fusion reflex does not overcome the deviation—fusion fails. In heterophoria the fusion reflex is effective and does overcome the deviation so as to produce single vision. In the absence of the fusion reflex the eyes assume the fusion-free position, any phoria which is present becomes manifest and so can be measured." Lancaster points out that at birth the eyes, including the neuron pathways involved in vision, are very imperfectly developed. As they grow anatomically they also develop physiologically. Some of this development is dependent on usage and development may not progress in a normal or ideal fashion. The course of development may be turned into wrong channels. Thus when we realize that orthoptics is the art of teaching children or adults how to use their eyes properly, we can understand how the skilled and purposeful guidance of an orthoptic technician can lead a patient to acquire habits or reflexes that are useful and nearer to the normal. Orthoptists must be carefully trained, and we would add,

directed. The best modern orthoptics, Lancaster observes, has been developed in London, and London-trained orthoptists have brought their knowledge and teaching to Australia. It should be quite easy for any intelligent person to understand that orthoptic exercises given by an untrained technician may have a damaging effect on the very muscles which it should be their aim to strengthen.

Current Comment.

TWO NEW ANTIBACTERIAL AGENTS.

THE quest for the ideal antiseptic still goes on. Study of the sulphonamides and antibiotic agents has dominated the field of research into combating bacterial infection, but in addition large numbers of chemical agents have been methodically investigated by clinical and laboratory tests. A good deal of interest has been attracted by a series of nitrofurans compounds, the most promising of which has been furacin (5-nitro-2-furaldehyde-semicarbazone). Furacin was used with apparent value in the treatment of infected war wounds and has now been singled out for extensive therapeutic trials. E. R. Shipley and M. C. Dodd² have published the results of its use in the local treatment of ninety cases of superficial infections. The compound, which is fairly insoluble in water, was used as a 0.2% solution in a mixture of "carbowaxes" and propylene glycol in which it is soluble up to a concentration of 1.0%. This base is water-soluble, non-irritating and non-toxic, liquefies at body temperature, and can be removed easily, without scrubbing, by washing with water. In all cases the preparation was applied so as completely to cover the area to be treated; deep wounds and cavities were filled with the ointment, and sinus tracts were irrigated with the melted ointment. The results of treatment were divided into four groups, brilliant, good, questionable, and with no effect. Of the 90 cases, the results in 26 were brilliant, in 44 good, in 13 questionable and in seven showed no effect. A total of 70 in the first two groups out of 90 cases is considered sufficient to qualify the treatment as valuable. The least satisfactory results were obtained in three cases of chronic osteomyelitis; most encouraging results occurred in the treatment of patients large areas of whose skin had been burned or avulsed, in the treatment of those suffering from ulcers, and in a relatively large group of cases in which secondary infection had supervened on a previously existing skin lesion. Striking immediate reduction occurred in the odour and drainage from wounds treated. The incidence of skin reactions to the drug was very low (2 in 90), and clinically there was neither retardation of growth of granulation tissue nor inhibition of epithelialization of wounds. It is emphasized that the ointment must reach the organisms to obtain a bacteriostatic effect and that its use does not remove the need for adequate surgery where it is otherwise required. It was observed that improvement in the appearance of a lesion followed closely the decrease in the number of organisms plated out on culture. In particular clinical improvement paralleled the disappearance of one or more of the infecting organisms from the wound. The lesions healed well when the symbiosis of the organisms had been broken up. The Gram-positive and Gram-negative species usually seen in surface infections showed a high degree of susceptibility to furacin, clinically and *in vitro*. As has been previously pointed out by Frank L. Meleney, Edwin J. Pulaski and Frances Colonna,³ furacin is compatible with penicillin and may be used in association with it in the treatment of infected wounds. Although it is not claimed that the perfect antiseptic has been found in furacin, it stands well ahead of many of its rivals. Shipley and Dodd certainly

¹ The Journal of the American Medical Association, February 16, 1946.

² Surgery, Gynecology and Obstetrics, March, 1947.
³ The Journal of the American Medical Association, January 19, 1946.

seem justified in their claim that the usefulness of furacin soluble dressing in the treatment of superficial infection has been established.

Another antiseptic preparation, which appears to have outshone its competitors, is G-11 (2,2'-dihydroxy-3, 5, 6, 3', 5', 6'-hexachloro-diphenyl-methane). Its particular field is the disinfection of the intact skin. C. V. Seastone¹ has demonstrated that when incorporated into a soap and used in the preparation of a surgeon's hands it produces a remarkable effect on the bacterial population of the skin. It is stated that bacterial counts of the washings of untreated hands are of the order of millions of organisms per litre; conventional preparation of the hands including the use of the scrubbing brush and germicidal rinses reduces the number of organisms about tenfold; the G-11 wash accomplishes a reduction of about a thousandfold, and this in a shorter time and without the use of the scrubbing brush or of other germicidal rinses. Moreover, when properly applied, the compound has a persistent effect lasting for about two days. The procedure recommended as effective for those constantly occupied in the operating theatre is a daily routine of preparation with G-11 in liquid soap (this occupies six minutes) and a brief wash with G-11 soap when changing gloves. Prolonged lathering with plain soaps and the use of alcohol rinses decrease the effect, presumably by extracting G-11 from the skin. No clear cases of skin sensitivity to G-11 have yet been noted.

Doubtless other and better antiseptics will yet be found; but in their respective uses both furacin and G-11 appear to show the authentic gleam of the precious metal as the sand of the likely chemical compounds is patiently and systematically sifted.

VAGOTOMY AND PEPTIC ULCER.

A good deal of attention recently has been given overseas to the relationship between the vagal innervation of the stomach and the factors underlying peptic ulceration. The most important work has been associated with the name of Lester R. Dragstedt, of Chicago. In a lecture delivered to the Royal College of Physicians and Surgeons of Canada,² Dragstedt has given the principal physiological findings of his experimental work as well as a summary of the present clinical position, especially in relation to the operation of gastric vagotomy.

The central fact bearing on the cause of ulcer is that pure gastric juice, as it is secreted by the mucosa of the fundic part of the stomach, has the capacity to digest all living tissue including the walls of the duodenum, of the jejunum, and of the stomach itself; previous damage to the mucosa does not seem to be required, but when this is present, the involved area succumbs more rapidly. Dragstedt quotes two experiments on dogs as illustration. In the first an accessory stomach pouch (after the method of Pavlov) was united to the small intestine; pure gastric juice not diluted nor neutralized by food or other secretions was diverted and the intestinal mucosa was exposed to its action. The mucosa so exposed was rapidly digested, the resulting defect closely resembling a characteristic peptic ulcer and tending to progress with hæmorrhage or perforation as the final result. In the second experiment the stomach was completely isolated with an intact blood supply and vagal innervation, the œsophagus being anastomosed to the duodenum or jejunum. Comment is made on three observations from this preparation. The isolated stomach continued to secrete large quantities of highly acid gastric juice; progressive hypochloremia followed with alkalosis, dehydration, and death in ten to twelve days; yet the animal remained in good health if the loss of sodium and chloride ions was compensated by the intravenous injection of physiological salt solution. This shows the effects that may be expected in man whenever the gastric juice fails to reach the lower absorbing portion of the intestine where its electrolytes can be returned to the blood. The second observation was the

frequent appearance of typical peptic ulcers in the isolated stomach, though normally spontaneous ulcers almost never occur in the dog. These ulcers appeared to develop in correlation with the volume and acidity of the gastric juice; they never appeared in a stomach whose supply from the vagus nerves had been divided. The third observation was the marked diminution in gastric secretion which followed section of the vagus; in one case, the acid secreted was reduced to one-tenth of the original amount, and, in another, to about one-sixtieth of that originally produced.

The reason why the stomach and duodenum are not normally digested is presumably that they are not exposed to pure gastric juice for any great length of time; food is the main protective factor aided by the neutralizing and buffering action of the gastric mucus and the alkaline duodenal secretions. It has now been demonstrated that an excessive continuous secretion of gastric juice occurs in most patients with peptic ulcer. The response to stimuli, such as food, alcohol or histamine, is not very great, but the activity of the empty stomach is striking and significant. From specimens obtained by continuous gastric suction for a period of twelve hours at night, it was found that patients with peptic ulcers secreted from two to ten times as much acid as did the normal individual when there was no obvious stimulant to the gastric glands. It is suggested that it is this copious secretion of gastric juice in the empty stomach at night and free from the buffering effect of food, that is most apt to destroy the mucosa, produce an ulcer or cause exacerbation of one already present. Dragstedt then states that this excessive continuous secretion is reduced to normal values by vagotomy, thus proving that it is neurogenic in origin. He discusses the attractive hypothesis that this neurogenic factor is related to the "tensions, anxieties and frustrations of modern life", and quotes two instances of sudden increase in gastric secretion accompanying sudden emotional stress in patients on whom continuous gastric secretion studies were being made; the stress in one instance was the danger of being check-mated during a game of chess, the other was anger arising during the course of a psychiatric examination. It is stated that a repetition of this experience after gastric vagotomy was entirely without effect. The relief of ulcer distress following vagotomy has been "uniform, prompt and complete", an effect not due apparently to anaesthesia, as was demonstrated by the production of severe epigastric pain, similar to the previous distress, by introducing hydrochloric acid into the stomachs of patients whose symptoms had been relieved by vagotomy. The effect thus appears to be due mainly to the reduction in the acidity of the gastric content following vagotomy and, to a lesser extent, to the reduction in the tonus and motility of the stomach.

Dragstedt states that complete division of the vagus nerves to the stomach causes prompt healing of gastric, duodenal and gastro-jejunal ulcers; the evidence of healing in his series was persistent absence of ulcer symptoms in spite of cessation of all medication and dietary restrictions, gain in body weight, and disappearance of craters and lessening of deformities in radiographic examination. In six cases of gastric ulcer gastroscopic examination confirmed the findings. Dragstedt quotes twelve cases of healing of gastro-jejunal or stomach ulcer following gastroenterostomy, gastro-duodenostomy or partial gastrectomy.

It is too early yet to assess the possibility of recurrence and Dragstedt does not permit himself any rash conclusions. However, the first patients, operated upon four years ago, are still well, and there has been no evidence of regeneration of the secretory fibres of the vagi in any case. It is a truism to say that the success of this treatment is dependent upon the exact anatomical knowledge and operative skill of the surgeon, but it is of interest to note that investigation of the technical details of the procedure has brought new knowledge to light. William F. Bradley, John T. Small, James W. Wilson and Waltman Walters, of the Mayo Clinic,³ and Edwin M.

¹ *Surgery, Gynecology and Obstetrics*, March, 1947.

² *The Canadian Medical Association Journal*, February, 1947.

³ *The Journal of the American Medical Association*, February 15, 1947.

Miller and Carl B. Davis, junior, of Chicago,¹ have separately investigated the anatomical variations which occur and discuss the surgical considerations arising from their findings, especially in regard to approach. We must wait for some years yet before we can be sure of the permanent value of this work, but there seems every reason for confidence that a significant advance has been made in the management of one of the most common and trying disabilities of modern man.

THE ATTAINMENT OF POISE.

POISE is usually defined as equilibrium, in either the literal or the figurative sense. It is doubtful, however, if we realize that after all these two meanings may indeed be one. Poise, as distinct from mere static posture, must surely have an important bearing on the correct integration of all bodily function. A most interesting discussion of poise has just been published by Raymond A. Dart from the point of view of the anatomist and anthropologist who takes a great interest in the correct application of the wonderful structure of the human body to the best ends of life.² He points out that malposture is found all over the world among urbanized mankind. This has been realized by many interested in the all-round education of young people, and to a lesser extent by some of the medical profession who are concerned in these aspects of bodily function in their daily work. Dart emphasizes that the attainment of poise is desirable for reasons far more important than the æsthetic; it is necessary also for economic efficiency and for health. For health full integration must exist between the vegetative and voluntary functions, and the latter cannot be properly discharged unless the neuromuscular apparatus of body balance is in working harmony with that of intentional movement. Posture is static; poise is dynamic and plastic. Dart as an anatomist does not agree with Howarth, who describes the basic dynamic posture as a slight crouch with slight flexion and inclination forward; this he regards as an intermediate posture between the true human orthograde posture and the more primitive pronograde posture. They agree, however, that the mere inculcation of a stance, such as the familiar "shoulders back, stomach in and chest out", will beget tension instead of the desirable harmony of relaxation. Poise is regarded by Dart as the single objective of human physique. He quotes a number of surveys which have shown clearly how universal are the evidences of bad body mechanics. Various observers have declared that assemblages of young people have revealed astonishing proportions of the physically inefficient. The recent war has, of course, reinforced this lesson; even the routines of physical training of an inelastic kind and the education inherent in the ordered activities of marching and drill have perceptibly improved many unpromising recruits. But the matter is much more than mere physical exercise. Dart mentions particularly the bad effects of malposture on health, instancing the functions of the circulatory and respiratory organs. He remarks that experiments on the effects of hyperextension of the arms on the circulation in the upper extremities show that nearly 90% of "normal" young American adults are malpostured; they cannot hold up their arms for any length of time without obliterating the circulation in their arms. Still more significant are the wartime disclosures of the inability of human eyes to meet the full requirements of life in respect of the function of convergence, a power which has, phylogenetically speaking, been only recently acquired by the human race. The work of Le Gros Clark is quoted. He and his colleagues found that hardly more than 20% of those selected for training as aerial artillery observers could elevate the eyes to 60° without strain. Cinematography showed that after 40° of elevation the movement passed rapidly down the spine from the atlanto-occipital joint. By altering the pivot of the apparatus it was possible to adjust the machine to the man, a principle of the highest importance, which was applied by science

to the arts of war, but is just as necessary in many other fields of human activity. It is interesting to reflect on the high percentage of people who must be maladjusted for normal vision. Even more striking is the reflection that malocclusion of the teeth must likewise be an effect of bodily maladjustment, or, coming back to our text, lack of poise. Living less reflexly than our antecedents in an evolutionary scale, we have some degree of mastery over the reflex machinery, but, as Sherrington points out, the brain does not meddle with these details, but rather dictates to the reflex mechanism whether or not it will act.

Dart refers to the methods of F. M. Alexander, which also have the commendation of Sherrington and Aldous Huxley. The object of these methods of physical training is to overcome undue meddling on the part of our conscious control with reflex performance, treating each act, in Sherrington's words, "as involving the whole integrated individual, the whole psychophysical man". Movement or action thus becomes a concern not of a particular part of the body only, but of "the total neuromuscular activity of the moment—not least of the head and neck". The neurological significance of the latter will be noted. Dart mentions his own personal interest in spastic conditions in children and the application of these principles; all will agree that every effort should be made on truly scientific lines to make these little unfortunate ones better able to cope with the world. Detailed references to educational methods cannot be made here. In indicating the principles involved Dart points out that the nervous and muscular systems and the segmentally arranged bones should be regarded as parts of a single neuromusculo-skeletal apparatus. From the point of view of physical education this is important, though it may seem obvious. Study should then reveal the incorrectness with which we are prone to allow our bodies to perform the primitive functions of balance and movement. The next step should be the correction of these faults which hinder in the attainment of that bodily harmony necessary for health. Dart thinks as an anatomist that development is often arrested at the last phase of attaining the orthograde posture characteristic of man, and that in removing the obstacles to gaining full coordination of the powers that should be our birthright, we may thus acquire poise in the full anatomical sense. It is time that we called in science to correct some of these errors of urban life. We may well ask the question if we have a better idea of deportment than that which obsessed the egregious Mr. Turveydrop, and if we have gone any distance along the road to Aldous Huxley's ideal of physical self-awareness and self-control leading to the same virtues on the mental and moral planes.

ATOMIC ENERGY AND MEDICINE.

ATOMIC ENERGY is perhaps unique in one sense, not scientific. It is a subject which is "news" to the whole world and yet merits not only its publicity but the earnest thought of every thinking person. Eugene P. Pendergrass, who is professor of radiology in the University of Pennsylvania, has published a condensed account of "Operation Crossroads" which was presented to the joint meeting of the Philadelphia County Medical Society and the College of Physicians of Philadelphia.¹ Though much has been written already about such aspects of this vast undertaking as are not under the ban of security, it is interesting to summarize a few of the facts he marshals. The task force consisted of eight groups, and was further subdivided into 37 task units. Two evaluation boards and commissions were allied with the experiments, but not under the unified command. In all 42,000 men and 250 ships participated in this vast enterprise. Some of the more important groups undertook the study of the following: blast from the air and from the surface and depths of the water; the effects on ship structures; the phenomena in relation to the bomb explosions, particularly pressure, shock and wave motions, electronics, radiometry, radio-

¹ *Ibidem.*

² *South African Medical Journal*, February 8, 1947.

¹ *Transactions and Studies of the College of Physicians of Philadelphia*, December, 1946.

logical safety, remote measurements, and photography; and lastly the technical side of the bomb operation. It is of great interest to medical practitioners to read how much care was taken of the men concerned in this work to secure them from the hazards of radiological effects of the blast. The author states that the activities of the officer responsible for this part of the operation pervaded almost every part of the enterprise. It will be readily believed that never before have there been such batteries of cameras recording a single event. Even as close as in the 75-foot steel towers round the atoll there were cameras. It is now generally known that there was great damage from direct heat radiation, and as well secondary damage from explosion of other materials. The second test, in which a bomb was exploded under the water, proved to be a more serious undertaking than might have been thought, for the radioactivity was more intense and much more vigilance was required. At the beginning of this year some of the ships were still radioactive, and this is expected to continue for some time. The writer describes the "greatest pageant of all times" as bringing into play physical forces of a fantastic nature. He quotes from *Time* some figures relating to the tests on animals. In the first test some 10% of the animals died at once from the air blast, and 10% more had died since from the effects of radiation. In the second test 77 out of 200 white rats died soon after the blast, and 49 died later of slow radiation sickness. Six pigs out of twenty were found dead four days after the explosion and the others died within two weeks. The effects of the radiation from this source of energy have been referred to in these pages previously. Two stages or varieties were noted. The immediate effects were weakness, malaise, fever and often death within a few days. The later effects included a serious reduction of leucocytes, thrombocytopenic purpura, aplastic anaemia, and reduction of gonadal activity. The last named was more prominent in men than in women, and atrophy of the germinal epithelium of the testis was observed. Patients in Hiroshima and Nagasaki who had suffered deep burns showed failure to heal, and cheloid formation in scars was excessive. The whole story has probably not been written yet.

Perhaps humanity asks the question whether we should go on with the greatest power that has yet come into our hands. But there can be only one answer to this. For one thing, we know already, quite apart from the industrial possibilities of atomic power, that there are great fields of knowledge opening before us. The radio-active elements used as tracers have already been of great value, and Pendergrass points out that radio-active carbon and hydrogen, obtainable through the energy released by chain-reacting atomic piles, promise to be valuable in many branches of medicine. We need to know much about the metabolism of cells as they grow and as they age, how they replace their used or worn fractions, if they do, and how they behave when some malign distortion of their natural destiny occurs. The author ends by an appeal to all who are interested in the scientific and humane aspects of these great forces, as yet only fractionally unleashed, that they should be ever conscious of the need to strive for peace. It is part of the cycle of human existence, of which we see only an inconsiderable fraction, that we should go on and on. When Faust entered into his wager with Mephistopheles, however tragic the results of his unnatural request might be, he was unlikely to lose a bargain which demanded that he should wish to arrest the fleeting moment, even at the cost of losing the future. No, it is the lot of man to go on, and it is for man to decide whether he will ride to the abyss.

THE RELATIONSHIP BETWEEN PERSONALITY AND DURATION OF STAY IN HOSPITAL.

It is, of course, evident that the duration of any given patient's stay in hospital for treatment of an acute medical or surgical illness is not entirely dependent upon the seriousness of his condition. His economic circumstances, the views and caution of his doctor and his own personality

will all contribute something to the decision as to how long he will stay. With regard to the last-named, it is more difficult to encourage a setting forth on the old ways of life in some people than in others. An attempt to measure that difference in terms of personality disturbances has been made by a group of workers who have devised a scale by which they claim that a rapid assessment may be made of such disturbances as the subject will admit. No doubt it is a good idea to try to measure everything, though we must be properly sceptical of our standards until we and others have proved them.

K. Brodman, B. Mittelman, D. Wechsler, A. Weider and H. G. Wolff have applied the index which they call the Cornell Service Index to the study of comparison of the times spent in hospital by patients suffering from comparable illnesses. They admit that to assess a large number of persons by the usual psychiatric individual methods would be impracticable, and claim that the substitution of a voluntary test of the nature of a *questionnaire* has proved to be satisfactory. When applied to a large number of individuals it is possible to compare them in terms of disturbances of personality or of a psychosomatic nature. The investigation was carried out in navy and army hospitals. This disposes of certain fallacies, as convalescence in the services depends chiefly, so far as its length is concerned, upon the man's ability to return to duty. In one hospital the minor varieties of respiratory infection were studied, and in two other hospitals lobar pneumonia, bronchopneumonia and atypical pneumonia. Changes in the medical officers caring for the patients were also noted. The investigation of the patients' personalities was carried out as soon as the acute stages of the illness were passed, and after their discharges relevant data were obtained about their service records and technical aspects of the illnesses. It is admitted that the system used would not detect some patients with compulsive neuroses, but these were classed as normal for the purpose of the research. Several methods of scoring in these tests were used, and in one hospital all the patients were interviewed in addition as a check on the accuracy of the method. The duration of stay in hospital was for the sake of comparison reckoned as the period between admission and the day when the medical officer thought the man fit for duty. It was found that men who gave evidence of personality defects or disturbances received longer periods of treatment than those who were presumably normal in this respect. This difference might be due to the greater frequency and point of the complaints of the one group as contrasted with the other. On the other hand it might be due to a greater severity of infections occurring in persons of this type. A consideration of the percentage of hospital patients with respiratory disease compared with the particular population from which they are drawn would suggest that individuals with personality disturbances are more prone to be attacked by respiratory disease than others. They also seem to seek hospital attention more than others, and having done so complain more of their symptoms. It was noticed that in every ward observed the normal types of patients were discharged earlier than the others, except in one ward where the opposite was the case. It is interesting that the medical officer here was intolerant of psychosomatic disturbances and the like. It is not stated whether the patients thus returned promptly to duty were any the worse. But the definite conclusion was arrived at that the average period of stay in hospital was increased for patients with personality disturbances treated for respiratory disease. The increases varied from 15% to 40%, differing with the type of the illness and the hospital concerned. The same authors carried out a similar investigation on patients treated with a wide variety of medical and surgical ailments and arrived at a similar result, except that the average increase found did not exceed 12%. This appears to mean that there is mathematical evidence to show that the psychologically weaker brother goes more readily to hospital, and having achieved what is now extraordinarily difficult for the civilian at least, he stays longer there. It does not seem surprising.

Abstracts from Medical Literature.

THERAPEUTICS.

Cardiac Therapy.

HARRY GOLD (*The Journal of the American Medical Association*, November 9, 1946) discusses the pharmacological basis of cardiac therapy. The author discusses the doses of digitalis and for heart failure suggests one large digitalizing dose of digitoxin (1.2 milligrammes). This does not cause the nausea and vomiting usually found with digitalis leaf or tincture. Not 2% of 1,000 patients so treated with digitoxin showed signs of vomiting, though there was a cumulative effect if the drug was continued. Quinidine, which acts quickly, giving maximum effect in two hours, is also cumulative, but only for three or four days. Mercurial diuretics are praised and their routine use is advised in heart failure even before oedema of the legs appears. The author further suggests regular dosage, an injection being given every day during acute symptoms, and on two or three days a week at a later stage. The drug is eliminated in twenty-four hours and is not cumulative.

Treatment of Syphilis.

P. A. O'LEARY AND R. R. KIERLAND (*The Journal of the American Medical Association*, October 26, 1946) discuss today's treatment of syphilis. A total amount of 2,400,000 units of penicillin in doses of 40,000 units every three hours for seven and a half days resulted in reversals of serological findings in seven months in 70% of patients who had had syphilis for less than two weeks, and in 38% of those who had had the disease for more than eight weeks. It has been said that there are four different types of penicillin, and these types are being studied in relation to syphilis. Meanwhile combined treatment with five injections of oxophenarsine hydrochloride, 1,200,000 units of penicillin and three injections of bismuth in ten days, appears to be the best treatment. Even the administration of six to eight million units of penicillin in ten days leaves 40% of failures in all types of syphilis, if penicillin is used alone. The authors give four injections of arsenoxide (referred to above) on four successive days in doses of 0.04 gramme daily. On the fifth day penicillin is given intramuscularly in the dosage of 40,000 units every three hours for seven and a half days. Then ten injections of bismuth subsalicylate (one and a half grains) are given at intervals of five days. Six months after treatment, if the titre of the blood remains stationary or increased, a second identical course of treatment is given. Intensive treatment with arsenicals gives a high incidence of complications, including death. The above course of treatment is advocated for early syphilis. For late cutaneous and osseous syphilis, penicillin is the outstanding remedy. One or two courses of 2,400,000 units are given. The lesions clear quickly, and although the results of serological tests tend to remain positive, there have been no recurrences of the lesions. In gummatous syphilis of liver or stomach 10,000 units of penicillin every

eight hours up to 2,400,000 units are given, and repeated two or three times if necessary. For cardio-vascular syphilis penicillin has shown no good results to date. Administration of arsenic and bismuth preparations, in small doses over several years, is said to be the treatment of choice. Latent syphilis and syphilis of four or five years' duration inadequately treated do not yield negative results to serological tests after arsenic, penicillin and bismuth treatment as a rule. Neurosyphilis has been treated with penicillin, four million units being given in each course of treatment, and the courses repeated every three to six months, depending on the activity of the cerebro-spinal fluid and the clinical state. Up to sixteen million units have been administered to some patients. Malarial therapy can be given at the same time, if desired. Penicillin reduced the intensity of the reactions in the spinal fluid, especially the cell count, but in general the effects were much the same as with arsenic and bismuth. Penicillin, however, was less toxic. In meningeal neurosyphilis the spinal fluid reactions were quickly reversed. Asymptomatic neurosyphilis did not give such good results. With tabes, taboparesis and general paralysis the response was less decided, and malarial therapy was more effective than penicillin alone. Penicillin alone reduced the frequency and intensity of lightning pains, but did not relieve gastric crises, ataxia or incontinence. Penicillin was superior to any other treatment in preventing congenital syphilis. Administration of 2,400,000 units in seven and a half days in the third month and again in the seventh month of pregnancy prevented the occurrence of congenital syphilis in the child in 99% of cases in one series. Penicillin is not so reliable in the treatment of congenital syphilis, interstitial keratitis being resistant, though cutaneous gumma and periostitis responded well.

Streptomycin.

H. C. HINSHAW, W. H. FELDMAN AND K. H. PFUTZ (*The Journal of the American Medical Association*, November 30, 1946) report the results of treatment of 100 patients with tuberculosis of various types by means of subcutaneous or intramuscular injections of streptomycin. In laboratory animals such as guinea-pigs and mice, the effect of treatment of tuberculous lesions with streptomycin has been most impressive. Resolution, fibrosis or calcification of active lesions has occurred in all animals in recent experiments, and the infection has been eradicated in 30% of animals. Of twelve patients with generalized hematogenous tuberculosis treated with streptomycin, five still survived after ten months. The lesions were meningitic in nine patients, and these patients would almost certainly have died if not treated with streptomycin. Intrathecal administration of 100 to 200 milligrammes of streptomycin every twenty-four or forty-eight hours by the lumbar or cisternal route for two to six weeks, in addition to the administration of two to three grammes of streptomycin intramuscularly every day for up to six months, gave the best results. Intrathecal treatment certainly gave the best results. Miliary tuberculosis required prolonged treatment with maximum doses. Healing trends, but no cure, have been reported in this type. Thirty-two patients with active progressive

pulmonary tuberculosis were treated with one to three grammes daily for two to six months. Definite improvement was observed radiologically in spite of unfavourable trends prior to the use of streptomycin. *Mycobacterium tuberculosis* disappeared from the sputum of thirteen patients. Seven patients made no improvement. Reactivation occurred on discontinuance of streptomycin in six patients. Five patients died. Tuberculous ulcers of the larynx and pharynx improved, but empyema did not. Of fifteen patients with tuberculous fistula, benefit was obtained from streptomycin in most cases. Amelioration was observed in fifteen patients with genito-urinary tuberculosis. Other tuberculous lesions responded to a variable degree to injections of streptomycin, one to three grammes in distilled water, given in four or six doses in the twenty-four hours. Toxic reactions were frequent, mainly giddiness and local reactions. Streptomycin should not be used for patients who are progressing satisfactorily, nor is it to be regarded as a substitute for other and proved methods of treatment of tuberculosis. At present streptomycin is expensive and in short supply.

Intrathecal Use of Penicillin.

T. C. ERICKSON, M. G. MASTEN AND H. M. SUCKLE (*The Journal of the American Medical Association*, November 9, 1946) describe some of the toxic effects of the intrathecal use of penicillin, in view of the apparent lack of knowledge of such reactions. In one case of meningitis, 50,000 units of penicillin in ten millilitres of normal saline solution were injected on four occasions in six days. The patient developed urinary retention, with loss of power and sensory defect in all parts below the distribution of the twelfth thoracic spinal nerve roots. Operation revealed extensive adhesions in the subdural and subarachnoid spaces, with obliteration of the subarachnoid spaces at the level of the tenth thoracic vertebra. Recovery was slow with residual paralysis. A child with meningitis died following intrathecal injection of penicillin on four occasions, and two other patients suffering from meningitis and cerebral abscess succumbed following similar treatment. Previously death has followed the intrathecal injection of penicillin in a large proportion of cases of pneumococcal meningitis, associated with blood in the spinal or cisternal fluid, myelopathy about the twelfth thoracic vertebral level, or spinal block with adhesions about the same level. The authors conclude that the effects mentioned were probably due to penicillin. It appears that these reactions are more likely to occur with more concentrated solutions (5,000 to 50,000 units per millilitre) than with dilutions of 1,000 units per millilitre. Large doses and frequent repetition of penicillin are also dangerous. The authors advise that when possible reliance should be placed on early treatment with maximum doses of penicillin parenterally, the intrathecal administration of penicillin being avoided. Where the intrathecal administration of penicillin is indicated, it should be given as dilute, as infrequently and in as small doses as possible. Meningococcal meningitis responds readily to sulphonamide therapy. Pneumococcal meningitis often responds to sulphadiazine and intravenous penicillin. If it does not the above

criteria should be observed if penicillin is given intrathecally. Not more than 10,000 units should be given at once, and the injection should be repeated as seldom as possible.

NEUROLOGY AND PSYCHIATRY.

Occlusion of the Basilar Artery.

CHARLES S. KUBIK AND RAYMOND D. ADAMS (*Brain*, June, 1946) discuss the symptomatology and pathology of occlusion by thrombosis and embolism of the basilar artery. The clinical histories and results of post-mortem examinations of eighteen patients are presented; in eleven the occlusion was thrombotic and in seven it was embolic. The symptoms and signs conformed to a fairly definite pattern consisting of a change in the state of consciousness varying from confusion to coma, headache, dysarthria and dysphagia, pupillary abnormalities, ocular palsy, facial palsy, hemiplegia or quadriplegia, and bilateral extensor plantar reflexes; often there was a terminal hyperpyrexia. The onset was abrupt, there was often temporary remission of symptoms followed in fatal cases by relapse and death. The cerebro-spinal fluid was clear and under normal pressure. The authors consider that it should be possible in most cases of basilar artery occlusion to make a correct diagnosis. The disease is not always fatal; histories are given of four patients who recovered. Photographs and diagrams are included of the lesions found *post mortem* in the patients who died.

Narcoanalysis in Mental Disorders.

It is claimed by Dominick A. Barbara (*The Journal of Nervous and Mental Disease*, October, 1946) that the increase of both civilian and war neuroses has called for an abbreviated form of therapy. He finds the orthodox psychoanalysis too extensive and expensive for the average patient, and holds that, among existing types of accelerated therapies, narcoanalysis is the most efficient. The technique is not beyond the competence of the ordinary psychiatrist who may be assumed to possess a workable knowledge of the psychodynamics of the neurotic structure. The author claims that narcoanalysis (a) shortens the transference relationship; (b) facilitates the lifting of repression so that the ego is more tolerant to the recall of traumatic experiences; (c) enables the patient to become susceptible to the assimilation of interpretations relative to his basic conflicts; (d) aids the therapeutic aim of synthesis and thereby enables the patient to achieve a more normal level in his interpersonal relationships. Narcoanalysis has also some value in the treatment of the psychoses.

Motion Sickness.

GUY MORTON, ANDRE CIPRIANI AND DONALD McEACHERN (*Archives of Neurology and Psychiatry*, January, 1947) describe the production of motion sickness in human subjects by means of a machine designed to reproduce the wayward movements of a ship at sea. Simple pendulum swings were also effective, although some persons susceptible to one motion did not succumb to the other. Vertical acceleration and deceleration in the long axis of

the body with head erect appeared to be the most important elements in the production of motion sickness. There was a definite correlation between history of motion sickness and susceptibility on the machines. Vestibular responses to the caloric test and electroencephalograms were no guide to susceptibility. A moderate increase in the sugar content of the blood and a reduction of the phosphorus content resulted from motion, whether or not the subject became sick; these changes were attributed possibly to the release of adrenaline. Study of electrocardiograms, blood pressure measurements, and the gas content of arterial blood gave no significant information. Bilateral labyrinthectomy abolished motion sickness in dogs which had previously been highly susceptible. The authors consider that the most important factor in motion sickness in man is probably stimulation of the utricles by linear accelerations in the vertical plane of the head.

Glutamic Acid.

FREDERICK T. ZIMMERMAN, BESSIE B. BURGEMEISTER AND TRACY J. PUTNAM (*Archives of Neurology and Psychiatry*, November, 1946) state that on verbal, motor and personality tests given, improvement following glutamic acid therapy could be observed in each of nine subjects during an interval of six months. Experiments indicate that glutamic acid has a particular relation to cerebral metabolism. The intrinsic connexion of acetylcholine with nerve activity and the demonstration of an increased rate of formation of acetylcholine in the presence of glutamic acid *in vitro* make it possible to assume that the physiological basis of the observed effects of glutamic acid is in some way related to the formation of acetylcholine. The authors consider that the results reported must be considered tentative because of the smallness of the group, but that the consistent improvement reflected in the psychological test scores under the conditions of their experiment suggest that glutamic acid may have a genuine facilitating effect on mental functioning in human subjects, as it does on maze learning in the white rat.

Disorders of the Body Scheme.

P. H. SANDIFER (*Brain*, June, 1946) states that the term "body scheme" was first used by Head and Holmes (1911) to signify the concept formed by the individual of his own body. It denotes the awareness that the body is an object comprising parts occupying space which are in spatial relation to each other. When this concept is disturbed by damage to one hemisphere, the subject may cease to be aware of the opposite half of his body (agnosia of body half) and often of disability involving the forgotten half of the body (anosognosia). Instances of these conditions are rare. The authors present details of three cases. In the first the patient showed anosognosia of a left-sided hemiplegia and of left-sided homonymous hemianopia. In addition there was neglect of space to the left side of the body and also of the left side of the body itself, for which there was complete agnosia. These symptoms resulted from softening in the thalamoparietal region of the non-dominant hemisphere produced by septic embolism. The second patient was an example of anosognosia of total blind-

ness peripherally determined, existing in a setting of mental confusion. This patient originally had a left occipital lobectomy performed for removal of an oligodendroglioma; two and a half years later the growth recurred in the left temporal lobe where it was found at autopsy; the right temporal lobe had herniated through the bone defect created at the original operation and the optic nerves had been so stretched as to produce blindness. The third patient suffered from anosognosia of hemiplegia with mental confusion following two "strokes". The underlying psychological and neurological factors are discussed in detail.

Insulin Therapy.

E. D. BOND AND J. T. SHURLEY (*The American Journal of Psychiatry*, November, 1946) review the results of their work in an insulin-shock unit for over nine years and consider whether they are justified in continuing the unit which is an expensive one. They discuss the basis of insulin-shock treatment, their own technique in detail and their results. Of 309 schizophrenic patients, 48.8% were recovered or much improved at the end of treatment, 47.0% at the end of the next thirty days, 43.0% at the end of the first year, and 37.0% at the end of five years. The authors consider that the unit is not too expensive to continue for a few years longer, and state that the striking fact that the good responses to treatment are immediate deserves more emphasis than it gets; even the transitory improvements seen in very chronic cases in the middle of treatment are medically important and of great help to other patients.

Treatment of Multiple Sclerosis with Dicumarin.

TRACY J. PUTNAM, LUDWIG V. CHIAVACCI, HANS HOFF AND HYMAN G. WEITZER (*Archives of Neurology and Psychiatry*, January, 1947) state that evidence has been accumulating over recent years which indicates that vascular destruction, or, more specifically, probably a thrombosis of venules, is an essential link in the chain of causation of multiple sclerosis and the related "encephalomyelitis". This evidence is summarized. The theoretical basis for the use of an anticoagulant in the treatment of multiple sclerosis is discussed, and the results of treatment of 43 patients with dicumarin (3, 3'-methylene-bis-[4-hydroxycoumarin]) for periods varying from six months to four years are reported. Doses of dicumarin sufficient to raise the prothrombin time to thirty seconds continuously were administered, with constant laboratory control. Twenty-five patients suffering from a remittent form of the disease were adequately treated without interruption for a total period of approximately sixty-one patient years. In this group no fresh symptoms or obvious outbreaks occurred. Most of the sixteen patients with chronic progressive disease continued in their downward course. The treatment of two patients was interrupted; they were free from new symptoms while taking treatment, but both had acute relapses when it was discontinued. In two cases large doses of dicumarin failed to produce the expected increase in prothrombin time, and relapses occurred.

British Medical Association News.

NOTICE.

THE General Secretary of the Federal Council of the British Medical Association in Australia has announced that the following medical practitioner has been released from full-time duty with His Majesty's Forces and will resume civil practice as from the date mentioned:

Dr. S. E. J. Robertson, 26, William Street, Double Bay, New South Wales (June 30, 1947).

Medical Societies.

THE MEDICAL DEFENCE SOCIETY OF QUEENSLAND.

THE annual meeting of the Medical Defence Society of Queensland was held at British Medical Association House, 225, Wickham Terrace, Brisbane, on February 20, 1947, Dr. G. P. Dixon, the President, in the chair.

Annual Report.

The following is an abridged copy of the annual report which was adopted at the meeting.

The council has pleasure in presenting the annual report of the Medical Defence Society of Queensland for the year ending December 31, 1946.

Membership.

The society has now a membership of 511, as against 476 last year, making a gain of 44 members. Of these, eight have not paid their subscription for 1946.

During the year 56 new members were elected and three were reinstated. Our losses were thirteen left the State and two deceased.

Obituary.

It is with deep regret that we record the deaths of Dr. G. E. B. Clayton and Dr. Ewing Thomson.

Office Bearers.

The following were reelected: *President*, Dr. Alex. H. Marks; *Vice-President*, Dr. S. F. McDonald; *Honorary Secretary*, Dr. Neville G. Sutton; *Honorary Treasurer*, Dr. L. P. Winterbotham; *Councillors*, Dr. A. G. Anderson, Dr. Gavin H. Cameron, Dr. G. P. Dixon, Dr. E. R. Row, Dr. John Hardie, Dr. G. W. Cacartney, Dr. R. A. G. Malcolm.

The retiring members were Dr. Alex. Marks, Dr. S. F. McDonald and Dr. L. P. Winterbotham, all of whom were reelected.

Retiring President.—Dr. Alex. Marks, who had held the position of president for the past fifteen years, and had been a member of the council for a much longer period, signified that he did not again wish to accept nomination for the presidency, and subsequently resigned from the council. It was resolved that the council place on record its deep appreciation of the very valuable service rendered to the society by Dr. Marks during the past fifteen years as president, and also as a member of the council, and wish him many years of happiness in his retirement from active practice.

President.

At the meeting of the council following the annual meeting, Dr. G. P. Dixon was elected president of the society.

Vacancy on Council.

Dr. R. G. Quinn, who had been a member of the Council prior to enlistment, was appointed to fill the vacancy caused by the resignation of Dr. Alex. Marks.

Medico-Legal.

During the year six cases were submitted to the society and legal advice obtained on behalf of the members concerned.

One case involving two members has been settled out of court. One of the members implicated was covered by the indemnity scheme with the London and Counties Medical Protection Society.

Two other cases are pending, one involving one member and the other involving two members.

Indemnity Insurance, London and Counties Medical Protection Society.

The original indemnity cover was for £1,000 in any one case and £2,000 in any one year, but increased indemnity, ranging up to a maximum of £25,000 in any one case and £50,000 in any one year, has been arranged with the London and Counties Medical Protection Society.

No concession can be made in the amount of subscription in the case of members of partnerships, and under certain conditions employees, such as nurses and dispensers, are indemnified; but the society will not give indemnity to non-medical assistants or subordinates.

Up to date a total of 227 members have taken out indemnity cover, a number of whom have taken advantage of the additional protection in varying amounts.

Insurance agents are also offering indemnity cover to doctors, but it is obvious that it is advisable for members to take advantage of the protection in this regard which is afforded through a professional organization.

Finance.

The total assets of the society amount to £7,754 8s. 8d., of which the sum of £6,563 18s. is invested in Commonwealth Government bonds and stock, the remainder being credit bank balances and cash in hand. The net surplus for the year was £463 18s. 1d. The receipts for the year amounted to £555 5s. 7d., made up of annual subscriptions and entrance fees (£314 3s. 9d.) and interest from Commonwealth bonds and stock and bank interest (£241 1s. 10d.). The total expenditure was £91 7s. 6d.

G. P. DIXON,
President.

Correspondence.

POST-OPERATIVE FLATULENCE OR "GAS" PAINS.

SIR: The method of after-treatment which I advocate is described as "elective alimentary rest". While the lower, inflamed part of the alimentary tract is rested, the upper unaffected part is used for the absorption of water, glucose, vitamins B and C in the first four days, and on the 4th, protein and fat and vitamins A and D are added.

Coppleson omits the word "elective" in his mention of method, and I believe that he has not fully appreciated rational and physiological basis. Physiological or therapeutic principles are ignored, although they should be carefully explained in handbooks of the type concerned.

Mr. Coppleson quotes it as a virtue of the handbook that it gives an account of different methods. But the methods given are mutually contradictory, and they are given with no guiding principle whereby the true may be distinguished from the false.

If Mr. Coppleson has ignored these guides, it may be asked, what guides does he use? Does he depend upon a love for, a sympathy with, and a deep understanding of the gastrointestinal tract, based upon close observation of its habits, peculiarities, likes and dislikes, and its reactions to different circumstances? I think not. He tells us that he prefers the observations of others with only elementary training. His guides are other than those we would expect of him. His letter gives us four:

1. The surgeon's style. "Each surgeon tends to build up a form of after-treatment which suits his own style of surgery." I cannot understand this. After-treatment should be based upon the biology of the peritoneal cavity, and of the alimentary canal, and of the patient as a whole, not upon the surgeon's style. But I may perhaps arrive at an understanding, if Mr. Coppleson would take some styles of surgery for example, and tell which form of after-treatment is suited to which style of surgery.

2. The enema. "I have always considered it best, as a routine, not to give an aperient until a satisfactory result has been obtained by an enema." Poor patient! Why should he have an aperient at all if he has delivered himself of a satisfactory result from enema? Presumably the patient starved on the day of operation and then had the usual minimum residue post-operative diet.

3. The middle course. Mr. Coppleson has tried "to steer a course between all the different opinions". This is a logical impossibility when the opinions are directly contradictory. The attempt can only lead to confusion of thought and of practice. There is a middle course between two roads which run parallel, but what if many roads lead in opposite directions? There is no alternative but to seek a reliable signpost and follow the one road which is right.

4. The nurse. "In selecting what might be considered sound practice, I was guided mostly by the advice of many competent nurses apart from my own experience, and I have mainly advocated methods which received their approval." The nurse is not trained like a scientist to observe, record, compare, control and analyse. Nor has she ever collected any well-documented and controlled evidence on the point. But this has been done by many distinguished and trained observers. So why go to the nurse? It is Mr. Coppleson who is writing the handbook for the nurse, not *vice versa*.

Of course the sisters in charge of the large surgical wards who have had extensive experience of both methods are entitled to be heard. If left to themselves these sisters use the method of "elective alimentary rest". If forced to use the older methods, they do it with reluctance. I know of more than one who would give a very small teaspoonful of paraffin, when oil was ordered, or a small ineffective rectal injection when an enema was ordered. When the safety of the fleet, or of the patient, is at stake, even Nelson would put the telescope to the blind eye. And the surgeons concerned were happy, because they attributed their good results to their pet aperient.

Here is an interesting and instructive fact. Mr. Coppleson's patients "complain bitterly" of elective alimentary rest. Over many years the patients managed by myself have made no such complaints. Surely Mr. Coppleson and his nurses have neglected to give the necessary explanation and reassurance to the patient. They have neglected psychological management.

And now Mr. Coppleson complains that I give one explanation for post-operative colic or "wind", and others give other explanations, while he stands bewildered in the centre looking for a middle course which does not exist. This seems to me to be a matter of rational principle and of critical faculty wherewith to separate the wheat from the chaff. Mr. Coppleson is distracted by someone who says that morphine may cause these abdominal pains. But morphine does not cause abdominal pain. It relieves all sorts of abdominal pain. Everyone knows that. Those who over the years operate on thousands of patients under local anesthesia with morphine as premedication do not find morphine pain. Biliary colic may be caused by morphine in some peculiar individuals, but this is so rare that I have never seen it.

Perhaps Mr. Coppleson would help us to understand his views better by answering a few questions. (i) Who are the authors who have ascribed post-operative colic (apart from a biliary colic) to morphine, or to "decomposition in the bowel" and, above all, on what grounds? (ii) Is not "decomposition in the bowel" a normal necessary and everyday function? And painless? (iii) Does Mr. Coppleson really believe the fantastic nonsense about morphine and decomposition? If he does not believe it, why cloud the issue? (iv) What does Mr. Coppleson himself believe to be the cause of the mild post-operative colic, called "gas pains" or "wind"? (v) What evidence has he for this belief? (vi) How can a principle of therapy (namely, rest for the injured and inflamed part) be right for the more serious cases and wrong for the less serious cases? (vii) Is there any sharply marked and fundamental difference between the serious and the mild cases, or do they merge imperceptibly one into the other? (viii) Fæcal impaction occasionally occurs in the rectum. Is not a temporary sphincter soreness in a very small minority, a very small price to pay for added peritoneal safety in all? This greater safety is demonstrated by Mr. Coppleson's leanings to the method in serious cases.

Mr. Coppleson writes of the "great satisfaction and relief" enjoyed by the patient after an enema. On the other hand, many suffer severe distress, which is not always reported to the surgeon, but taken as something to be expected. I now have before me two skiagrams, one taken before and the other taken after evacuation of a barium enema. I would suggest that Mr. Coppleson, and everybody interested in the subject, should obtain a dozen or so similar skiagrams from the radiology department. They are very important and demand study. They usually show the rush of fluid into the ileum and the enormous excursion of the visceral walls. The reaction to this distension is a forced and vigorous peristalsis. When it is realized that the enema given by the radiologist is given at low pressure, under visual control, and that the enema given by the nurse is a high-pressure "evacuant" enema, the violent disturbance caused by the latter may be realized. Then, when the necessity for rest to the recently inflamed or injured part is remembered, and above all, the necessity for avoiding extremes of forced movement, it would be hard to retain sympathy for the enema.

Mr. Coppleson states that he has seen patients recover after aperient or enema. I think it fair to state that,

although this may be true, probably none of these patients have recovered on account of the aperient or enema. Indeed some have recovered in spite of them. "Pain, the Monitor." On the other hand, many patients have recovered after elective alimentary rest, and some, on account of it.

Finally, I would suggest that Mr. Coppleson should read, or reread, Professor L. J. Witts's article on "Ritual Purgation in Modern Medicine", published in *The Lancet*, Volume I, 1937, at page 427.

Yours, etc.,

V. J. KINSELLA.

235, Macquarie Street,
Sydney,
May 29, 1947.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 94, of May 29, 1947.

ROYAL AUSTRALIAN AIR FORCE.

Permanent Air Force: Medical Branch.

Wing Commander (Temporary Group Captain, Acting Air Commodore) E. A. Daley is promoted to the rank of Air Commodore with effect from 1st January, 1947.

Citizen Air Force: Medical Branch.

The appointment of Flight Lieutenant C. R. Ratcliff (267517) is terminated on demobilization, 16th April, 1947.

The following Temporary Squadron Leaders are promoted to the temporary rank of Wing Commander, 3rd January, 1947: C. A. Frew (261604), G. C. V. Thompson (252836), D. McK. McNab (252720).

The following Flight Lieutenants are promoted to the temporary rank of Squadron Leader, 3rd January, 1947: (Acting Squadron Leader) L. C. Rowan (253729), N. S. Waddy (267139), R. G. Skinner (267526), N. M. Kater, M.C. (267549), J. B. Craig (297223), G. D. Charters (257499), L. R. Trudinger (257718), D. A. S. Morgan (287465), R. K. Dolg (257656), T. Schlicht (257727), L. P. Comino (277539), A. M. Beech (257693), J. J. Nattrass (257665), A. H. Toyne (267719), C. H. Walsh (267801), G. M. Golditz (267763), P. A. Deck (267790), P. H. Cohen (257700), H. P. Greenberg (267761), J. E. Joseph (257661), A. C. Newell (257690), G. A. Leyland (287460), R. W. M. Gray (267762), L. Kowadlo (257662).

Reserve: Medical Branch.

Raymond George Tonkin (251659) is appointed to a commission with the temporary rank of Squadron Leader, 1st May, 1947.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

ANNUAL GENERAL COURSE.

THE Post-Graduate Committee in Medicine in the University of Sydney announces the following activities which form part of the annual general course.

Lectures.

Sir Gordon Gordon-Taylor, K.B.E., C.B., F.R.C.S., will deliver two lectures at the Stawell Hall, 145, Macquarie Street, Sydney, at 8.15 p.m., as follows: Friday, June 20, "Some Aspects of Cancer Surgery"; Tuesday, June 24, "Bad Surgical Risks".

The annual general course is conducted by the committee, the subscription being £1 1s. per annum. Further details may be obtained on application to the Secretary, 131, Macquarie Street, Sydney (telephone: BW 7483, B 4606). On this occasion, however, all medical practitioners are being invited to be present at these lectures without fee.

Film Programme.

The following medical films will be shown at the Stawell Hall, 145, Macquarie Street, Sydney, at 4.30 p.m. on

Wednesday, June 18, 1947: (i) "Skeletal Fixation by the Stader Splint—Fractures of the Tibia"; (ii) "Skeletal Fixation by the Stader Splint—Fractures of the Os Calcis"; (iii) "Analysis of Muscle Function in Polymyositis".

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

LATE AFTERNOON COURSE IN NEUROLOGY: AN ALTERATION.

THE Melbourne Permanent Post-Graduate Committee announces that the course in clinical neurology suitable for general practitioners, to be conducted by Dr. E. Graeme Robertson from June 12, 1947, will be held at the Royal Melbourne Hospital main lecture theatre, and not at the Medical Society Hall, as previously announced.

Obituary.

FREDERICK WILLIAM DEAN COLLIER.

WE are indebted to Dr. C. R. Furner for the following account of the career of the late Dr. Frederick William Dean Collier.

Frederick William Dean Collier, whose sudden death on March 29, 1947, has taken from our midst a skilful surgeon and fine citizen, was born in Samoa in 1873, where his father, the Reverend J. W. Collier, was a Methodist missionary.

Coming to Australia at the age of six years, he was educated at various schools in the towns where his father was stationed. He entered the University of Sydney from Maitland High School in 1901, first of all taking his degree in arts and then in medicine in 1908. After serving at Sydney Hospital as resident medical officer he commenced practice in Teralba, New South Wales, in 1909, moving later in the same year to Wallsend and in 1924 to Newcastle to practise as a consulting surgeon.

Disguising the fact that he had a loose cartilage in his knee, he enlisted in the first Australian Imperial Force and served in the Middle East and France. After two years the cobblestones proved too much for his knee and he was invalided home.

It was during his early years at Wallsend that, owing to much work with early unprotected X-ray machines, he developed burns which led in later years to the amputation of a number of fingers on each hand. Always interested in surgery and having both a splendid brain and operative skill, he soon achieved a reputation which brought him a large consulting surgical practice. A great reader and thinker, he was quick to learn of and consider the possibilities of new methods. Practising in a reputedly goitrous area, he was one of the first to have done a large number of thyroidectomies. His orthopaedic work was of a high standard and his services were used freely by the biggest mining companies and heavy industries. He had an unquenchable thirst for knowledge which led him to England at regular intervals to see and hear what others were doing. In 1931 he was elected a Fellow of the Royal Australasian College of Surgeons.

Probably the best work of his life was done in England, whither he went in 1939. He felt that war was coming, and knowing that he could not enlist in the Australian Imperial Force, was determined to be as close as he could and do all he could in the struggle. From 1939 till 1946 Collier was in London. His work was soon known and he was appointed head of the surgical team in several London County Council hospitals, going from one to the other as he was bombed out of each during the blitz on London. During the last five years he was in charge of the surgical side of the big London County Council Hospital at Paddington where numerous Fellows of the Royal College of Surgeons came for experience.

Whilst in London he was knocked down by a bus in a blackout and received a compound fracture of his arm—actually he was saved from a severe hæmorrhage by the prompt action of an Australian nurse who took off her stocking and used it as a tourniquet. In spite of his hands with many fingers missing and an ununited fracture of his arm, he continued his high standard of work.

He returned to Australia in November, 1946, and his friends were shocked to see how thin and ill he looked, how

he had aged. Immediately he returned to work and was operating until three days before his death.

His thirst for knowledge left him no time for sport or recreations of an athletic nature. He could not understand anyone not wanting and striving to improve his mind.

Work of some sort was to him the only thing worth doing. His great delight was for a young surgeon to spend an evening reading surgery with him. If he had a hobby it was the study of cultural anthropology to which he devoted much time even in England in 1934 with Sir Grafton Elliot Smith. He was a lecturer in New South Wales for the Workers' Educational Association in this subject. He was one of a small group of intellectuals who formed a gossip club for discussing topics in which they were interested. In this, I am told, his intellect and deep knowledge were outstanding. He was a keen Rotarian and a past president of the Newcastle Club. The Society for Crippled Children appealed to his sympathy and he devoted much time to its work.

Although avoiding social life as most of us enjoy it, he was a brilliant conversationalist with the keenest sense of humour, and one of his greatest delights was in testing the



biblical knowledge of the nursing nuns, enjoying their confusion when unable to answer his questions. He was only short and thin, but had a grand head.

It is told that in Egypt with the first Australian Imperial Force, during a big review by the General Officer in Command, his horse bolted with him when the band commenced to play. He had not the strength to do more than hang on whilst the whole of the front rank of the review scattered before the charger.

His deep sympathy and clear understanding of other people's viewpoints made him the best and most loyal of friends, but he hated self-pity and liked people to be "tough". His own health he would not discuss. Although so ill he joked with his driver as he drove to Sydney the day before his death. He never spared himself or his assistants in giving all he had to his patients.

He was fearless and absolutely intellectually honest. His influence on surgical practice was great, and many young men received help from his teaching; never seeking the limelight, he was nevertheless an outstanding figure in the medical and community life of northern New South Wales where his colleagues and the people revere his memory and mourn his death. To his widow and daughter are left the memory of one who devoted his life to an ideal and whose work and inspiration will live on.

DR. A. E. HARKER writes: I became associated with Dr. Fred Collier in 1909 when he started in practice at Teralba as assistant to the late Dr. H. K. Bean, of Wallsend. Shortly afterwards he moved to Wallsend, taking over the practice that had belonged to the late Dr. J. B. Nash. We

became very great friends and worked together for many years at Wallsend Hospital. Dr. Collier had a very good surgical grounding, was very keen and was working in an industrial district where very little except emergency surgery had been done and with a hospital where he could do more or less what he liked. He was very wise, was content to go slowly, not attempting to do anything that he was not fully capable of doing. He became in course of time a very sound surgeon, particularly in the orthopaedic branch, and his reputation was high, both with the public and his medical colleagues.

He was appointed as surgeon on the staff of the Mater Misericordiae Hospital when it was opened and then moved into Newcastle, sold his practice at Wallsend and was appointed as junior surgeon to Newcastle Hospital and later senior surgeon. He became a Fellow of the Royal Australasian College of Surgeons shortly after its inauguration.

Dr. Collier served in the first World War, mostly in France. When the second World War broke out he was in Colombo, on his way to London. On arriving in London he offered his services to the British Medical Association, who turned him over to the London County Council. He was appointed a surgeon to one of London's suburban hospitals and later was in charge of a surgical unit at Paddington Hospital. He worked throughout the whole of the war, was bombed out of hospital on several occasions, but was fortunately not injured.

In the early days at Wallsend Hospital a small X-ray plant was installed and Dr. Collier was more or less in charge of it. Inadequate protection from the rays was the cause of severe keratosis of the hands, so bad that several of his fingers had to be amputated. He paid two visits to England to see if anything could be done for them, but of no avail. This handicap did not deter Dr. Collier; he kept on operating with the same coolness and skill, though how he did it was a miracle to those of us who knew of his disability.

Dr. Collier returned from England several months ago, a very sick man. The strain of his work in London and poor food had taken a heavy toll on him. To our amazement he immediately started work, though he was not fit for it. He said that he had learnt such a lot in London and he wanted to impart his knowledge as quickly as possible to his colleagues, but it was not to be.

Dr. Collier was a very quiet and unassuming man; small and nuggety, he reminded me very much of the late Sir George Syme in build, manner and speech and also in his quiet skilful manner of operating. He was a great student and had a very wide literary knowledge, but he lived for surgery and had very few interests outside it. He is greatly missed in Newcastle.

ALFRED JOHN GIBSON.

We are indebted to Dr. T. Dixon Hughes for the following account of the career of the late Dr. Alfred John Gibson.

Alfred John Gibson was born at Windsor, New South Wales. He was the son of Dr. John Gibson, who had practised in that district for many years, and had given his life in service of his profession. It was this spirit of service that inspired the young Alfred John Gibson as he set out on his medical career, and was the dominant note throughout his life. Not only was this reflected in his practice, but in care for the body politic of the medical profession. He was a member of the Council of the New South Wales Branch of the British Medical Association for some years, and in 1936 became President of the Branch, also Chairman of the Section of Obstetrics and Gynaecology and Vice-President of the Medical Benevolent Association; he was a member of the Medical Defence Union for many years. He was also actively interested in the welfare of nurses and was a member of the Council of the Australasian Trained Nurses Association. This, perhaps, was all the more dear to his heart, as he married Miss Ailsie Talbot, a sister at the Royal Prince Alfred Hospital. This marriage was one of those supremely happy unions, and it was in the relaxation of his home with his wife and family that John Gibson found his greatest happiness. After completing a year as junior resident medical officer at the Prince Alfred Hospital, he entered general practice in 1912 as an assistant to Dr. Brown Craig. He tried to enlist in the Australian Imperial Force, but was rejected for a cardiac lesion, which was the ultimate cause of his death. One of the guiding influences of his medical life was the late R. H. McCulloch, who urged him to apply for a position at the Women's Hospital in 1914, and who guided him through the early years at that institution. He threw his whole energy into this work at the Women's Hospital, and earned the respect

of all who came in contact with him—colleagues, residents, nurses, students and patients. In 1925 he became a member of the senior medical staff, and a few years later became senior honorary obstetrician and gynaecologist, which position he held till he was forced to retire from active work by a flare-up of his heart condition. Although not well, he felt that he could serve the hospital best by accepting nomination for President of the Board, to which position he was elected in 1944, and reelected in 1945; in this year he resigned from the honorary medical staff and was elected to the position of honorary consulting obstetrician and gynaecologist. He retained his teaching appointment as lecturer in clinical obstetrics and as an examiner at the University of Sydney after giving up the active side of obstetrics, and his sound teaching has left its imprint on many students. He was justly proud that he was instrumental in getting the Council of the New South Wales Branch of the British Medical Association to form a committee for the investigation of maternal mortality, of which he was chairman, and as the result of its deliberation, the



Director-General of Public Health recommended to the Government of New South Wales a scheme for the reduction of maternal mortality, which included the formation of a mobile transfusion service (praise of which has appeared in the columns of this journal) and a free consultation service, also a committee to study all maternal deaths.

All these activities helped to take toll of a heart which, however kind, could no longer carry the load it had done so well. So A. J. Gibson died, loved and respected by all.

DR. JOHN CHESTERMAN writes: It was my privilege and good fortune to work with A. J. Gibson over a period of years as his "junior" at Crown Street Women's Hospital. He was an example of all that a perfect "senior" should be—willing always to pass on all that he could of his knowledge and experience and anxious that one should see and discuss as many cases as possible, ready at all times to help his "junior" out of a difficulty. Add to this his agreeable manner and a temper most equable, even in the small hours before dawn, and it is plain to see why he was held in such affection and respect in his hospital. "A.J." was a most sincere man and, in the true sense, deeply religious. He always contended that only by an individual change of heart could the sorry state of the world be mended. In his sincerity and thoroughness lay his value as a teacher, and many hundreds of students, now doctors, will remember his insistence on basic principles when dealing with a difficult

obstetric case. His early death is a sad loss to his friends, his hospital and the community, but his good influence will be felt for a long time.

DR. R. McD. BOWMAN writes: Forty years was I privileged to know A. J. Gibson, and only when a lifelong friend has gone does one fully realize what a privilege one has had. He was always a very thorough person in anything he took up, keen to know all about it and do it to the best of his ability, whether it was sport or work. I always found that for Gibson to speak of a man was to speak well of him. His word was his bond, his actions always upright; there was no cunning in his nature.

The biggest disappointment of his life was the refusal of the authorities to accept his services in the first Great War, and he laboured many extra hours at his hospital doing duty for others of the staff who were on active service.

In the selection of a wife, Gibson made the best of many good decisions and his domestic world was always one of complete happiness. He lived to see his three daughters married and had great satisfaction and pride in his grandchildren. Although he did not reach old age he would be the first to say his life had been a full and happy one.

REGINALD LONSDALE MORTON.

We regret to announce the death of Dr. Reginald Lonsdale Morton, which occurred on May 25, 1947, at Melbourne.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Wolters, Phillip Benjamin, provisional registration, 1947 (Univ. Sydney), 3, Bellevue Park Road, Bellevue Hill.

Hatfield, Kenneth Daniel, M.B., B.S., 1946 (Univ. Sydney), 11, Roscoe Street, Bondi.

Nuffield, Edward Joseph Alexander, provisional registration, 1947 (Univ. Sydney), St. George District Hospital, Kogarah.

Medical Appointments.

Dr. A. R. Haywood has been appointed a member of the Board for the Protection of the Aborigines, pursuant to the provisions of Section 7 of the *Aborigines Act*, 1928, of Victoria.

Dr. W. E. B. Boscence and Dr. M. Y. Sheppard have been appointed honorary clinical assistants to the surgical section of the Royal Adelaide Hospital, Adelaide.

Dr. J. E. Barker has been appointed honorary assistant anaesthetist to the Royal Adelaide Hospital, Adelaide.

Dr. R. T. Allan has been appointed a member of the Indeterminate Sentences Board, pursuant to the provisions of Section 531 of the *Crimes Act*, 1928, of Victoria.

Books Received.

"An Integrated Practice of Medicine: A Complete General Practice of Medicine from Differential Diagnosis by Presenting Symptoms to Specific Management of the Patient", by Harold Thomas Hyman, M.D.; 1946. Philadelphia and London: W. B. Saunders, Company; Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 9 1/2" x 6". In four volumes and index. Volume I, pp. 1123; Volume II, pp. 1034; Volume III, pp. 1144; Volume IV, pp. 1094; Index, pp. 208. All volumes contain many illustrations, some of them coloured. Price: 375s.

"Pye's Surgical Handicraft: A Manual of Surgical Manipulations, Minor Surgery, and Other Matters Connected with the Work of Surgical Dressers, House Surgeons and Practitioners", edited by Hamilton Bailey, F.R.C.S. (England); Fifteenth Edition; 1947. Bristol: John Wright and Sons, Limited; London: Simpkin Marshall (1941), Limited. 8 1/2" x 5 1/2", pp. 680, with many illustrations, some of them coloured. Price: 25s.

"The 1946 Year Book of Physical Medicine", edited by Richard Kovács, M.D.; 1947. Chicago: The Year Book Publishers, Incorporated. 7" x 5", pp. 400, with illustrations. Price: \$3.75.

"Diseases of Children", edited by Donald Paterson, M.D. (Edinburgh), F.R.C.P., and Alan Moncrieff, M.D. (London), F.R.C.P.; Volume I; Fourth Edition; 1947. London: Edward

Arnold and Company. 9" x 6", pp. 784, with many illustrations. Price: 30s.

"Clinical Bio-Chemistry", by Ivan Maxwell, M.D., B.S., M.Sc., B.Agr.Sc., F.A.C.I., F.R.A.C.P.; Sixth Edition; 1947. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 8" x 5 1/2", pp. 506. Price: 40s.

"Experiences with Folic Acid", by Tom D. Spies, M.D.; 1947. Chicago: The Year Book Publishers, Incorporated. 9" x 6", pp. 112, with many illustrations, some of them coloured. Price: \$3.75.

Diary for the Month.

JUNE 16.—Victorian Branch, B.M.A.: Finance Meeting.

JUNE 17.—New South Wales Branch, B.M.A.: Medical Politics Committee.

JUNE 18.—Western Australian Branch, B.M.A.: General Meeting.

JUNE 19.—New South Wales Branch, B.M.A.: Clinical Meeting.

JUNE 19.—Victorian Branch, B.M.A.: Executive Meeting.

JUNE 24.—New South Wales Branch, B.M.A.: Ethics Committee.

JUNE 25.—Victorian Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute; Brisbane City Council (Medical Officer of Health); Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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